



## EAGLE LOC 900 RESCUES PORT OF TAMPA FROM 'AGGRESSIVE' IRON EATER

**ROTTED DUCTILE PIPE REPLACED WITH PLASTIC WATER MAIN, REDUCING COSTS AND MUNICIPAL WORRIES.**

Corrosive, aggressive soil had eaten through a 35-year-old ductile iron pipeline, causing a multitude of leaks that could not be repaired. To replace the rotten pipe with more iron would be costly and shortsighted. The radical environment near the Port of Tampa called for innovation and a leap of faith. Something that went beyond standard practice or accepted wisdom. The rescue came when JM Eagle, the world's largest manufacturer of plastic pipe, introduced Eagle Loc 900™, a new internal joint restraint system.

Water Department engineers were unaware of JM Eagle's 2009 breakthrough, according to a source close to the City of Tampa project. An internal joint re-

straint that eliminates the need for external fixtures on PVC (polyvinyl chloride) pipe fittings seemed too good to be true. Careful research and long deliberations led staff to a unanimous decision: get on board with progressive technologies.

Engineers believe the conditions that so easily destroyed the iron water main that was expected to last 100 years may be typical of many American ports. In Tampa, contamination came from soils dredged from the bay which likely contained residual chlorides – a deadly enemy of ductile iron pipe. It is also possible that the groundwater in the area suffers from salt-water intrusion. More than 13 unstoppable leaks were found in a 200-foot section of the old iron water main, sources say.

The Tampa Water Department approved the purchase of 960 feet of 12-inch DR18 Eagle Loc 900, which was used in a project that began in November 2009 and concluded in January 2010.

### ■ CONTRACTOR GIVES INTERNAL RESTRAINT A+

Installation of the PVC was the responsibility of Dallas 1 Construction & Development. The contractor specializes in underground utilities, such as storm drains, sanitary systems and roadwork, to name a few. With 28 years of experience working with pipe ranging in size



from 2 to 84 inches, they were familiar with local city and county needs. Yet Steve Mitchell, production pipe foreman, says the port project was the first time they had encountered Eagle Loc 900.

“Once I read the instructions, away we went. After installing a few we thought, this is great, much easier than ductile iron. And I like the lock system because you don’t have to physically install a locking system or put a restraint on the pipe itself. This system saves time because the lock is already installed. I’ve been doing this for 35 years and I think it would work well in any number of situations.”

According to Mitchell, the timesaving aspect of the internal restraint joint was particularly helpful because the digging in the port area was “by no means a picnic.” The combination of toxic soil and rotted ductile slowed the process considerably. Yet the Dallas 1 Construction crew was able to lay more pipe per day than would have been expected with ductile or other products that require old-fashioned restraints.

“One particular day we laid 640 feet of pipe. If I’d have used restraint joints, we probably would have gotten only 450 to 500 feet installed because it takes about 30 minutes per restraint. Not only do you put them on, you have to get into the hole and put the bolts through. On the 12-inch pipe, which is what we were installing, usually you need two bolts per side of the joint and then you have to snug them up.”

Saving time was not the only virtue of using PVC. The lightweight yet indestructible Eagle Loc 900 meant Mitchell’s crew did not have to expend as much physical energy to get the job done. Therefore, they were more productive each day.

“It saves energy and physical abuse to the body. We do a lot of deep, nasty big pipe, so we’re used to doing a lot of loading and locking up of pipe. There’s a whole lot of difference using the JM Eagle product. There are virtually no man-hours needed for the restraints. Personally, I think the system is fantastic and every one of the guys who worked the project said they liked it, too.”

## ■ CITIES SEE FUTURE IN PVC

Previous to the port project, the largest PVC installed by the Tampa Water Department was an 8-inch diameter. Why so slow to adapt to other PVC products?

According to local industry expert Roy Thames, President and CEO of Thames and Associates, Tampa is “similar to many municipalities, where engineers embrace new standards and products only after the technology has been thoroughly tested and proven. In this case, ductile iron had been the reigning standard material for many years.” Only after digging up the corpse of an outdated idea were engineers ready to rethink their approach.



Mitchell concurred. “It’s not that Tampa officials don’t like PVC. But like many municipalities, the city is picky about trying new products. The corrosive soil gave them no choice. This port island was pumped in 50 years ago. They didn’t have a lot of regulations, so everything you can imagine probably got put in there. Every iron pipe we’ve dug up has been totally eaten up.”

Not that soil corrosion was the only problem engineers needed PVC products to overcome. Another sensitive issue for Tampa officials was the many live loads that the water pipe would endure on a daily basis.

The intersection of Gatx Drive and Guy N Verger Boulevard, where JM Eagle PVC pipe has been installed, leads to one of many docks in the Tampa Port Authority district. Large trailer trucks traverse the area at all hours of the day. Understandably, city engineers initially expressed concern about PVC's ability to handle the pressure and weight. Conclusive evidence of PVC's suitability for the project came from an Army Corps of Engineers study.

"There isn't a person who puts pipe in the ground who wouldn't like this product," says Mitchell. "As long as you follow the manufacturer's guidelines, you won't have any problems."

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The JM Eagle's internal innovation also resolved another dilemma that allowed the city of Tampa to avoid a costly renovation. The port water main crosses underneath railroad tracks in three locations. Replacement pipes, plastic or iron, would need to fit through existing protective underground sleeves. Engineers knew that typically external restraints would make the replacement pipe too big to fit. Since using ductile iron was out of the question, and expanding the underground sleeves would cost time and labor, Tampa personnel were in a bind – until the discovery of Eagle Loc 900.

#### ■ PVC BENEFITS IN ANY ECONOMY

JM Eagle's internal joint restraint technology is fitted into the bell portion of PVC pipe when it is manufactured. During on-site installation, each set of connected pipe immediately locks as the joints are put together. Also, to promote corrosion resistance, the internal joint restraint is encased within the PVC pipe so it is never exposed to soil and flowing fluids.

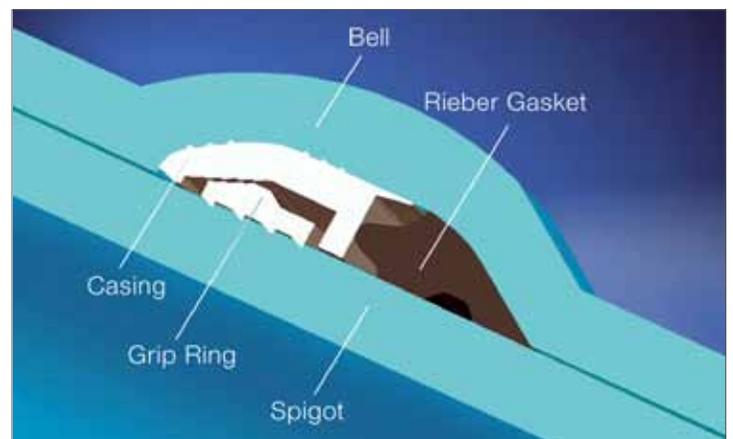
Installation of iron typically creates complications – and man-hour demands – not associated with use of

plastic pipe. For example, Mitchell calculated that the use of Eagle Loc 900 on the Port of Tampa job probably saved him "a couple of days of labor."

Other costs include making a separate run to pick up restraint and joint fixtures for ductile pipe. Then the product is stored in the open air for long durations, perhaps rusting while it waits to be installed. Compare that scenario, says Mitchell, to the use of internal joint restraint technology. When the PVC is delivered, it is ready to go. "My motto is, 'Do it right once.'"

Great savings, convenience and durability await municipal officers who realize the time has come to embrace new concepts and technologies.

Walter Wang, CEO of JM Eagle, believes the Eagle Loc 900 internal joint restraint technology has arrived at an important moment.



"Replacing America's crumbling infrastructure is obviously a priority, but often too expensive for cities and counties to initiate," says Wang. "We believe our innovation can provide a dependable, long-term option that's a low-cost, high-return solution for large-scale water works projects."

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*For more information about the Eagle Loc 900 internal PVC restraint system visit [www.jmeagle.com](http://www.jmeagle.com) or call (800) 621-4404.*