



July 21, 1993

TO: Electrical Materials Council
Pipe Resource Organization
Vinyl Packaging Council

RE: Available Pro-Active Literature

Attached you will find a list of pro-active materials for the Vinyl Institute committee on which you served. These materials are now being offered to the VI member companies for their use.

If you would like to receive any of the literature listed on the attached sheet, please let me know no later than August 6th which pieces you would like to have a supply of. At that time, I will split equally the pieces of literature among the members who are requesting it.

If there are any pieces left that no one is interested in receiving, ADH will be instructed to destroy them, as we are not going to continue to pay their monthly materials management charges on this literature. For your information, I will be keeping a small supply of each item in the VI office for inquiries.

Along with the list of materials for your committee, I have enclosed a copy of the first page of each piece for easy recognition. Please return the enclosed list checking off the items you would like to receive.

If you have any questions, please don't hesitate to contact me.


Pat Benkner

/pmb

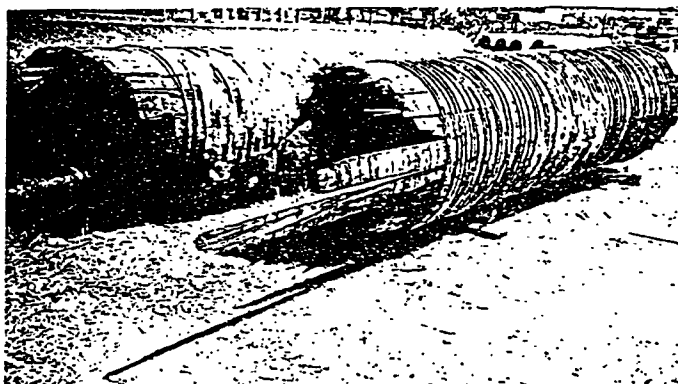
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PIPE RESOURCE ORGANIZATION LITERATURE

<u>Item</u>	<u>Ref. No.</u>	<u>Approx. Quantity On Hand</u>	<u>Item Request (Check)</u>
<u>Pipe Resource Reports:</u>			
Changing of Guard	097-3064	1,400	_____
PVC Pipeline	097-3067	1,400	_____
Fountain of Youth	097-3096	1,600	_____
Engineering Firm	097-3097	1,100	_____
Batavia Breaks	097-3065	1,400	_____
PVC Pipe Delivers	097-3095	1,100	_____
DR25 Transmission	097-3066	1,300	_____
Water Quality	097-3128	220	_____
Water Quality Issue	097-3061	1,400	_____
Economics is Issue	097-3069	2,200	_____
Reliability is Issue	097-3102	2,200	_____
Versatility is Issue	097-3109	20	_____
PRO Folder Only	097-3062	900	_____
Fire Journal Reprint	097-3101	900	_____
PRO Bibliography	097-3075	1,800	_____
Pipeline and Utilities	097-3151	1,400	_____

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PVC PIPE RESOURCE REPORT



36" Wood Stave Pipe, circa 1920's.



Changing of the Guard in Pueblo, Colorado

The Pueblo, Colorado, Water Board is a large water purveyor in the Pueblo, Colorado, area serving a population of over 100,000. Manager of Distribution and Transmission, Terry Book, states, "Our distribution system currently consists of 467 miles of water pipes with over 33,000 metered customers." Water supply for the system is provided by the Arkansas River.

Last year the decision was made to replace a 60 year old section of water main that was becoming more and more prone to leakage. These 30 and 36 inch water pipes were of particular interest in that they were wood stave pipes. As you will see by the picture, the wood staves were circumferentially reinforced by steel

bands. Each band had a bolt head that fitted into a formed shoe that was then tightened with a nut.

"The wood itself was doing well, but the bands and service connections were leaking more and more," according to Mr. Book. Leak frequency reached the point where the cost effective decision was to replace.

Out came the wood stave and in went the PVC. 5,000 feet of 24 inch PVC replaced the 36 inch wood and 4,000 feet of 20 inch PVC replaced the 30 inch wood. Both diameters were provided in DR 25 pressure rated 165 psi as per UNI-B-11, "Recommended Standard Specification for Polyvinyl Chloride (PVC) Water Trans-

mission Pipe (Nominal Diameters 14-36 inch)."

The installation photos shown conjure up a lot of mental pictures of the old versus the new. Think of the labor intensive installation of the wood era as opposed to the high tech products and machinery of today. PVC's high strength to weight ratio, longer lengths, high impact strength, etc., all serve to make it today's product for today's market. Just imagine hand tightening each and every one of those bands!

The wood pipe did well. Sixty years of service for a product of the '20's is very good. Today's products must serve our infrastructure for 100 years and beyond. Pueblo made today's long-term choice, PVC pressure pipe.

Uni-Bell PVC Pipe News
Summer, 1988



Installing 24" DR 25.

This information reprinted courtesy
the Uni-Bell PVC Pipe Association.

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PVC PIPE RESOURCE REPORT



The irrigation dam in the background supplies water for the first leg of its trip through the coulee to the reservoir under construction (back of wing tip) in Magrath, Alberta.

PVC Pipeline Solves Water Problem

One year ago, the entire town of Magrath, Alberta, some 1,600 souls, depended on two wells for their domestic water supply. The water these two wells produced was uniformly hard, containing iron, manganese and lots of salt (over 300 parts per million). Analysis revealed the water contained total dissolved solids of 1,700 parts per million. Residential water pipes suffered as a result, many requiring replacement every five years.

Today, fresh glacial water is delivered at the rate of 2,500 gallons per minute by Canada's first large diameter PVC

This information reprinted courtesy
the Uni-Bell PVC Pipe Association.

pipeline. Total dissolved solids are down to a respectable 300 parts per million, making the quality of Magrath's drinking water equal to or better than that of most municipalities across the country. "While we are happy about that, many people here are even prouder of the system that brings the water to us," said Rod Bly, town manager.

The new PVC pipeline stretches for six and one-half miles over the rolling foothills surrounding the town. The efficient design provides pressure of 50-70 psi at every residential tap in town, without the need for even one pumping station anywhere down the line.

The new pipeline is part

of a complete water supply system that includes a 1.4 million gallon reservoir, a dam and a filtration plant, located five miles from Magrath and at an elevation some 200 feet above the town.

The first leg of the pipeline is an 18-inch large diameter PVC pipeline 8,200 feet in length that feeds waters from the nearby Waterton Valley rivers to the new reservoir. From there, a 20-inch large diameter PVC pipeline takes the water 27,300 feet, completing the route to the town.

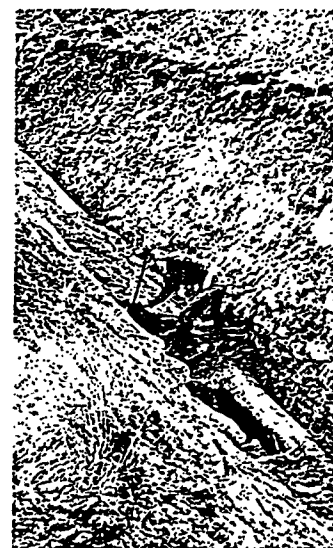
The Magrath project has proved to be well worth the additional eight dollars per month each resident has added to their water bill. In addition to the obvious benefits of

cleaner and more plentiful water, the project was completed on time and utilized local labor for much of the work. A good portion of the money spent on the project stayed right in Magrath in the form of wages.

The final bill on the project was \$3.1 million. Magrath's share of the cost was 20%, with the Alberta Department of Environment picking up the remaining 80%.

When asked how a project this size managed to come in on time and on budget, project manager George Hasegawa replied: "By doing it ourselves, by eliminating pumping stations and by going to PVC pipe."

Hasegawa calculated that each and every resident (of which he is one) saved about \$100 by using these methods and materials. The pipeline itself accounted for \$825,000 of the total project cost, including all fittings. over



The average depth of bury was eight feet. The one-day maximum laying rate was 1,150 feet.

PVC PIPE RESOURCE REPORT

With PVC Pipe City Finds 'Fountain Of Youth'

Nearly 500 years after Ponce de Leon first laid eyes on what is today the state of Florida, people around these parts are still searching for water. The difference is that the water they seek is 400 to 500 feet straight down in the Lower Hawthorne Aquifer, not in the fountain of youth that legend says the Spanish explorer was trying to find.

Without fresh water, Cape Coral and other communities like it throughout Florida would experience limited growth and might slowly wither away. The city is in the midst of a \$28 million expansion program that will nearly double the size of its water system when completed in mid-1991.

William Geertse, city construction manager, believes the project — begun in February 1990 — is the largest water expansion program now under way anywhere in the South-eastern United States.

Fully 90 percent of the 300 miles of new pipe on the project will be PVC, including all sizes from 2 to 20 inches in diameter.

"I know PVC pipe is being used successfully in even larger diameters in other parts of the country. I look forward to the day when local standards will permit us to do the same," Geertse says.

"Then there would be a good chance that we might use nothing but PVC on a job like this



A joint of 12-inch PVC (vinyl) pipe is prepared for installation in a \$28 million expansion project that will double the size of Cape Coral, Florida's water system.

Trench excavation proceeds just ahead of 12-inch PVC (vinyl) pipe being installed. Of the 300 miles of new pipe being added, fully 90 percent is made of lightweight, non-corrosive PVC.

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PVC PIPE RESOURCE REPORT

For Award-Winning Engineering Firm PVC Increasingly The Pipe Of Choice

There was a time when Jack Dillard would tell a contractor: "Use either ductile iron or PVC pipe on the job... You decide." PVC often won, he says, because of its cost advantages.

Increasingly, however, Dillard has been specifying PVC exclusively, not only because of its good economics but because of a number of environmental and overall performance considerations.

Dillard is a senior project engineer at Briley, Wild & Associates, the award-winning Ormond Beach engineering consulting firm. Dillard, full name L. J. "Jack" Dillard Jr., has been with the firm more than 37 years and is responsible for designing pump and pipeline applications for water, sewage and drainage systems.

On one recent project, in Belle Glade, Fla., near the

southeastern tip of Lake Okeechobee and the Everglades, Briley, Wild designed an extension to the city's water system. The rich soil in the area is strongly acidic. "We had a lot of muck there," Dillard describes. "It was very corrosive."

He solved the problem on this job, as he has on others like it, by specifying PVC pipe.

"You don't get the corrosion you would from metal pipe. You also get good flow characteristics with PVC because of its smooth bore. This can have a positive cost impact over time because of lower maintenance and pumping costs," he said.

On another project in northern Florida, Briley, Wild specified PVC pipe for the wells and collection pipe to a water treatment plant. The plant was being designed to remove salt from drinking water by reverse osmosis. There was concern that the use of metal pipe might increase the metallic content of the water.

By far the project Dillard has enjoyed working on the most



Twelve-inch PVC pipe was specified to replace clay pipe in an Ormond Beach, Fla., gravity sanitary sewer system. Jack Dillard (left) supervises installation.



Jack Dillard examines 3-inch PVC pipe to be used in an effluent distribution system at Ocean-side Country Club, Ormond Beach, Fla.

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PVC PIPE RESOURCE REPORT

Batavia Breaks Ground With North America's Largest Diameter PVC Pressure Pipe Installation

The City of Batavia, New York, has come a long way since its first municipal sewers were installed in 1903. They were, of course, clay tiled. Problem was, the materials had breakage and leaky joints after installation.

Batavia's Director of Public Works and City Engineer, Dennis Larson, explains, "This city is built on a flat bog with an unusually high water table. That plus the fact we have numerous hot soil areas contributed to reduced life spans for some of our force mains. In addition, maintenance costs escalated due to leakage problems on the gravity clay tile lines."

As a result, in more recent years, Larson's engineering team began to include polyvinyl chloride (PVC) pipe in its tendering specifications. The reasons are sound: PVC is unaffected by corrosion; PVC is smooth-walled and, as such, offers less resistance to waste buildup which can dramatically reduce flow capacities.

Now in and around Batavia there are miles and miles of PVC gravity sewer pipes ranging in size from 6-ins. to the large 24 and 30-in. diameter mains.

So, it was to PVC that Batavia turned recently. The project: To provide large diameter PVC pressure pipe for a new 4,900 foot sewer force main capable of moving all effluent in the city from a new central pumping station to an also new treatment plant.

The current 14-in. ductile iron main together with the

present treatment plant will be phased out of service.

For the new line, specified as pressure pipe, the Uni-Bell member company recommended its 30-in. SDR 25, introduced to the marketplace in 1987. The pipe meets all industry standards including AWWA C905, "Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14 In. Through 36 In.," and UNI-B-11, "Recommended Standard Specification for Polyvinyl Chloride (PVC) Water Transmission Pipe (Nominal Diameters 14-36 Inch)," and with 32-in. OD, is the largest

diameter (PVC pressure) water transmission pipe made in North America.

"We felt confident in choosing it, largely on the basis of slickness and flow characteristics, and its heavier wall," notes Larson. "Very simply, we were looking for the very best pipe for the job."

Pressure rated at 165 psi, SDR 25 weighs 86.58 lbs/ft and has a wall thickness of 1.280 ins. The design flow rate is 10,608 USgpm and the friction loss rating is only 0.200 ft/100 ft.

According to Larson, the city "has no way to bypass the

line. A breakdown would mean a complete shutdown of the system. Consequently, the pipe must perform."

Installation of the new Batavia force main started in mid-May, 1988. It was completed on schedule by September 1. Now tested and ready for use, the force main awaits completion of the treatment plant sometime in 1990.

Bryan Smith of the consulting engineering firm of Tallamy, Van Kuren, Gertis and Associates, Orchard Park, New York, is equally optimistic about the successful, long-term operation of the system. As the resident engineer on the project, Smith anticipates, "No problems whatever," with the unique new force main. One reason is the track record of all of the PVC pipe previously installed in the city. "We have used a lot of Uni-Bell member company PVC pipe with no instances of pipe failure," he says. In the past year, Batavia installed close to 24,000 feet of PVC pipe for gravity sewers, including an additional 2,500 feet of the same 30-in. pipe.

Smith makes his second point by referring to test results for the pressure force main. "Although normal use pressures in the line will be 30-40 psi, we tested it at 100 psi and held that pressure for four successive days. There were no leaks."

The new PVC force main has a capacity of 22 million gals per day. The system is designed for an average flow rate of 6 million gals/day. Peak design

over



The 30-inch PVC pressure pipe is installed.

This information reprinted courtesy
the Uni-Bell PVC Pipe Association.

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PVC PIPE RESOURCE REPORT

PVC Pipe Delivers Safety, Reliability For Corpus Christi Water Superintendent



One of the big advantages PVC pipe has over pipe made of concrete or iron is its light weight and the ease with which it can be installed, says Paul Werner (above, left).



An ocean-going freighter passes through the Avery Point Channel to the Port of Corpus Christi (left), as Paul Werner supervises PVC pipe installation. By replacing 8-inch cast iron pipe with 16-inch vinyl pipe twice its diameter, Werner was able to double the flow of water in two lines joining the Point to the city's main water system.

Paul Werner was born and raised in the Lone Star state of Texas. But when it comes to selecting water pipe for the city of Corpus Christi, you would think he was from Missouri.

"You have to show me," says Werner, superintendent of the city's water system, adopting the motto of the "Show Me" state as his own.

"When more than a quarter million people count on you for fresh, high-quality water, you

choose your pipe carefully. You specify only those materials proven safe as well as reliable."

For more than six years now, the material Werner has chosen almost exclusively has been PVC for all pipe up to 16-inches in diameter. He is increasingly using it in larger sizes, too.

In addition to its lower initial cost, Werner says PVC's advantages include its lighter weight, availability in longer pipe lengths and ease of handling, all of which add up to improved

safety on the job and lower installation costs.

"Longer lengths enhance our ability to lay pipe. PVC doesn't require as many people to do the same job. We can keep our labor costs down," he says.

"We have to try to get as much out of the dollars available to us as we can both in material savings and the economic balance

we need to maintain the system."

On rehabilitation jobs where water lines may be located in easements at the rear of homes, Werner says it is much easier to replace lines in those crowded spaces with lightweight PVC

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PVC PIPE RESOURCE REPORT

DR 25 Transmission Pipe A Bonus for Nacogdoches

Many people consider the City of Nacogdoches ideally situated. It is surrounded by several national forests and state historical parks, offers a close proximity to a couple of large lakes and is only a couple of hours from the Gulf of Mexico. On top of all this, Nacogdoches is in Texas.

In the early to mid 1980's, Nacogdoches experienced significant growth. Of course, along with increases in growth come increases in demand for water, not only to swim and recreate in, but to feed lawns and drink as well. "Demands on the old Post Oak Road Pump Station had increased to the point that supply to the station was inadequate to meet requirements during periods of peak usage," according to Mr. John Phillips, Nacogdoches' Director of Public Works.

The installation of slightly over 10 miles of 20 inch DR 25 PVC transmission main was the ideal solution to meeting additional demands.

A project entitled, "City of Nacogdoches 20 Inch Water Main to Post Oak Road Pump Station," was designed and specified by the Lufkin branch of Kindle Stone and Associates, Incorporated (KSA) under the supervision of Mr. Carl D. McConnell the project manager.

The City of Nacogdoches had used PVC C900, in sizes 4 inch through 12 inch, with great success for a number of years. According to Mr. McConnell, the engineers at KSA also had several years of good experience with PVC. Based on these combined experiences, a decision was made to include PVC as an alternate on the 20 inch project. The engineering analysis revealed that DR 25, pressure rated 165 psi, was more than capable of meeting the pressure requirements.

over



Left to right: Gary McLaen, McLaen Construction; C.C. Smith, KSA Inspector; Carl D. McConnell, KSA Project Manager.



Even 20" PVC can be maneuvered by the man in the ditch.



Shovel slicing native sandy material into the haunch helps ensure adequate support.

This information reprinted courtesy
the Uni-Bell PVC Pipe Association.

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The Vinyl Institute, A Division of The Society of the Plastics Industry, Inc.
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PVC PIPE RESOURCE REPORT

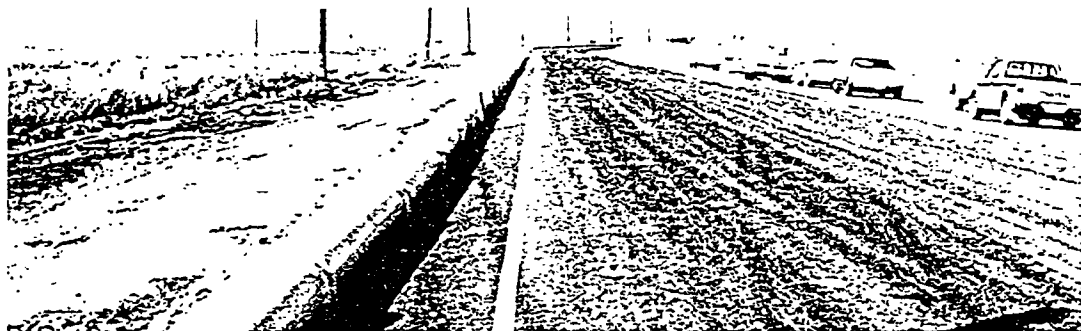
PVC Pipe Protects Water Quality In Drought-Stricken California

Water issues continue to make headlines in the drought-stricken state of California. Not only is the availability of water an issue in a state which is experiencing its fifth consecutive year of drought conditions, but the quality of available water is as well. One area in central California that was concerned about water quality was the town of Dos Palos. Dos Palos is a farming community located approximately 50 miles northwest of Fresno, California, near Interstate 5.

The existing water supplies which serviced Dos Palos and the surrounding area came from a series of open canals that had become contaminated with chemicals due to run-off from adjacent crop-bearing fields.

Upon the recommendation of the Dos Palos Area Joint Power Agency (a consortium of Fresno County, Merced County and Dos Palos area agencies) a decision was made to construct a 17 mile pipeline from the California Aquaduct to the existing Dos Palos water treatment facility where water would be treated and fed into the existing distribution system.

Initial plans for the "Dos Palos Area Joint Powers Agency Water Transmission Pipeline Improvements" project began in April 1989. Designed



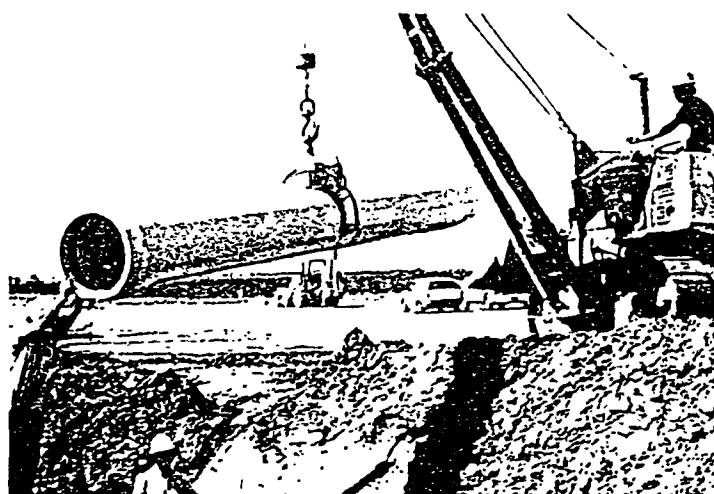
PVC pipe transports water throughout the drought-stricken state of California. Here a roadside pipeline is shown serving Dos Palos, a farming community located 50 miles northwest of Fresno, near Interstate 5.

by the firm of Giersch & Olson, Inc., Civil Engineers, Madera, California, the pipeline consisted of nearly 88,000 feet of 20 inch DR 25 PVC water pipe.

Engineering analysis revealed that 20 inch DR 25 pressure rated 165 psi PVC pipe was easily capable of handling both the external loading and internal pressure requirements for the project. PVC pipe was also specified for its ease of handling and light weight (tight space conditions prevailed for much of the job as most of the line was within county road right-of-way), superior flow characteristics, immunity to corrosive soils and overall cost.

In August 1989, construction and installation of the pipeline began under the supervision of Valley Engineers, Inc. of Fresno, California. The contractor utilized a wheel trencher, where native soil allowed, to expedite production. Using sand as a bedding material, the pipeline was buried three to five feet below the clay-rich native soil.

Due to the poor bearing



PVC pipe was specified for use in Dos Palos, California because of its ease of handling and light weight. Much of the pipe was installed under tight space conditions, with most of the line being within county road right-of-way.

capacity of the native soils, all mechanical joint fittings and adjacent pipe bells and spigots were restrained with devices meeting the standard requirements of restraint devices for PVC pipe. Installed in 20 foot sections, the pipe was assembled smoothly, often with a simple bar and block.

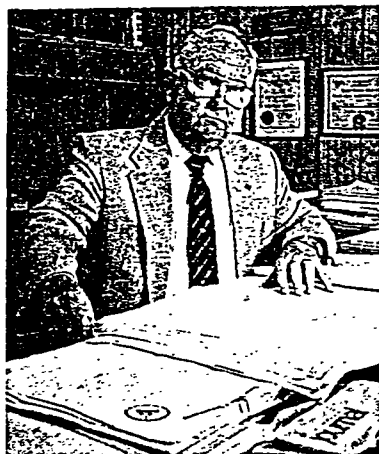
The line was completed in December 1989, and successfully tested and accepted by the Agency.

Now a reliable PVC system is in place to ensure long-term conveyance of one of the state's most precious and dwindling resources—water.

This information reprinted courtesy
the Uni-Bell PVC Pipe Association

CTL006648

*The Vinyl Institute, A Division of The Society of the Plastics Industry, Inc.
Wayne Interchange Plaza II, 155 Route 46 West, Wayne, New Jersey 07470. (201) 890-9299*



“Originally, we were a large user of other pipe materials, and we approached PVC with certain caution. Now, for environmental and other reasons, we’re using PVC almost exclusively.”

Paul Werner
Water Superintendent
City of Corpus Christi
Corpus Christi, Texas

WHEN WATER QUALITY IS THE ISSUE, PVC PIPE DELIVERS!

When more than half a million people count on you for fresh, high quality water, you choose your water pipe carefully. You specify only those materials proven safe as well as reliable. Materials recognized by government and standards authorities as delivering water to the tap as clean and pure as when it left its point of origin.

That’s why when Paul Werner, Water Superintendent for the City of Corpus Christi, Texas, oversees the expansion or renovation of his 1,300-mile water system, PVC is his primary pipe choice.

“Originally, we were a large user of other pipe materials, and we approached PVC with certain caution,” Werner says. “Now, for environmental and other reasons, we’re using PVC almost exclusively. It has good flow characteristics and it resists chemical deposits.”

Also according to Werner, studies have shown that PVC imparts no taste or odor to the water it transports. Nor does it chemically react, even with the aggressive water conditions that are often found in other regions of the country.

“PVC has proven to be a good service product for a lot of reasons,” Werner says. “It’s lightweight and easy to install and it has good workability. It flexes to accommodate the soil contraction and expansion we experience throughout the South, especially during drought conditions. And PVC holds up well in our highly corrosive soils.”

To find out more about why water officials throughout the U.S. and Canada are increasingly turning to PVC for piping systems of all sizes, call or write PRO, The Pipe Resource Organization, The Vinyl Institute, c/o 114 Mayfield Ave., P.O. Box 3053, Edison, NJ 08818-3053.

PRO, The Pipe Resource Organization, is a program of The Vinyl Institute carried out in cooperation with other PVC pipe associations. This project has been developed with the assistance of Uni-Bell PVC Pipe Association.



“At Breakaway Trails, as well as at other developments, cost is a major reason for specifying PVC. Not just the initial material cost, but handling, installation, labor, equipment and long-term maintenance costs.”

Jack Dillard
Senior Project Engineer
Briley, Wild & Associates
Ormond Beach, Florida

WHEN ECONOMICS IS THE ISSUE, PVC PIPE DELIVERS!

A primary benefit that good engineering provides today's construction projects is good economics. Good economics applying not just to initial material costs, but to total costs throughout a project's intended service life.

So when the engineers at Briley, Wild & Associates specify pipe for potable water, wastewater treatment and effluent reuse systems for residential developments throughout the Southeast, they specify PVC.

One leading example is Breakaway Trails, a totally self-contained, 715-acre residential development in Volusia County, Florida. It was designed by Briley, Wild with an innovative system of treating and recycling effluent to protect the state's wetlands. And it earned the firm the engineering profession's top honor in 1988, the Grand Conceptor Award from the American Consulting Engineers Council.

“At Breakaway Trails, as well as at other developments, cost is a major reason for specifying PVC. Not just the initial material cost, but handling, installation, labor, equipment and long-term maintenance costs,” says Jack Dillard, senior project engineer. ***“You also get good flow characteristics with PVC because of its smooth bore. This, too, can have a positive impact on cost because of lower maintenance and lower pumping requirements over time.”***

Dillard says resistance to corrosion is another important reason for specifying PVC. ***“We have especially corrosive soils throughout Florida, particularly around the Everglades. Our experiences, as well as those of others, show that PVC resists corrosion better than other pipe materials,”*** he says.

To find out more about how PVC is meeting the cost and performance requirements of engineers and municipal officials throughout the U.S. and Canada, write PRO, The Pipe Resource Organization, The Vinyl Institute, c/o 114 Moyfield Ave., P.O. Box 3053, Edison, NJ 08818-3053.

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WHEN RELIABILITY IS THE ISSUE, PVC PIPE DELIVERS!



“PVC pipe doesn't cost as much, it's easier for contractors to install and tap, and we get less friction and better water flow with PVC than with alternative pipe materials.”

Robert Welton
Assistant City Engineer
City of Fargo
Fargo, North Dakota

Soil corrosivity can be a problem for water pipe virtually anywhere in the U.S. That's why cities like Fargo, North Dakota rely on PVC pipe. Since 1980, Fargo has used nothing but PVC for all of its new and replacement water distribution lines.

“Back in 1970, we had some serious difficulties with cast-iron pipe. It had become pitted, corroded and porous, and this caused major problems with water leakage,” says Fargo Assistant City Engineer Robert Welton. “We could have installed plastic-coated ductile-iron pipe to replace the cast iron, but we didn't go with that alternative because it was just not competitive with PVC for a number of reasons.”

Welton lists the advantages that PVC offers: “PVC pipe doesn't cost as much, it's easier for contractors to install and tap, and we get less friction and better water flow with PVC than with alternative pipe materials.

“We want a product that we can just put in the ground and forget about. We haven't had a single break in any of the PVC pipe that we've installed in 10 years. That's reliability.”

Reliability. Cost efficiency. Easy installation. To find out more about why PVC is the material of choice for municipal water officials and consulting engineers throughout the U.S. and Canada, write PRO, The Pipe Resource Organization, The Vinyl Institute, c/o 114 Mayfield Ave., P.O. Box 3053, Edison, NJ 08818-3053.

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WHEN VERSATILITY IS THE ISSUE, PVC PIPE DELIVERS!



"We've worked with PVC in a wide range of sizes. We feel confident recommending it because it is so versatile."

Dave Sutton, P.E.
Vice President
WVP Corporation
St. Louis, Missouri

When an engineer specifies water pipe for any use, versatility is a must. Versatility relating not only to pipe size, but to how the pipe handles, installs and performs in a variety of applications, soil conditions and environments.

That's why when the consulting engineers at WVP Corporation specify water pipe for new and replacement applications for clients in Missouri and surrounding states, they consider all pipe materials and increasingly specify PVC.

"In our 20 years of experience with potable water systems, we've worked with PVC in a wide range of sizes. We feel confident recommending it because it is so versatile," says Dave Sutton, a WVP engineer and vice president. "Contractors like it because it's flexible, lighter and often more economical to install than other pipe materials. Clients like it because it holds up over time and delivers water as clean and pure as it is received," he adds.

Sutton says another reason for specifying PVC is its durability and overall strength in high pressure applications. For example, his firm recently installed a five-mile stretch of PVC pipe meeting AWWA's C-900 specifications for a city in eastern Missouri. This was after a computer analysis showed the city's previous water distribution system was too small and would not deliver enough water to meet demands.

"Not long after the contractor installed the PVC, there was a fire at the local high school, and we're convinced a major disaster was averted because the new main was able to deliver the strong, steady and ample supply of water necessary to quickly extinguish the fire," Sutton says.

To learn more about why project managers, engineers and water officials throughout the U.S. and Canada prefer the versatility of PVC for piping systems of all sizes, write PRO, The Pipe Resource Organization, The Vinyl Institute, c/o 114 Mayfield Ave., P.O. Box 3053, Edison, NJ 08818-3053.

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097-3062

PVC PIPE

FOR ALL THE

RIGHT REASONS

CTL006653

NOVEMBER/DECEMBER 1990

Is PVC Piping Firesafe?

Joseph B. Zicherman, PhD



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Wayne Interchange Plaza II • 155 Route 46 West • Wayne, NJ 07470 • (201) 890-9229 • FAX (201) 890-7029

CTL006654

PVC PIPE RESOURCE REPORT**Technical Information Available**

Information on the use of PVC pipe in water distribution, waste water handling and plumbing systems is available from the following organizations. The publications listed are subject to availability and there may be a charge for some items. To order these publications, contact each organization directly.

From the American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103 (215) 299-5400:

Buried Plastic Pipe Technology, Papers from a symposium held September 10-13, 1990 and sponsored by Committee F-17 on Plastics Systems and Subcommittee D20.23 on Reinforced Plastic Piping Systems and Chemical Equipment, Designation: STP 1093.

Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings, Designation: D2855.

Standard Specification for Coextruded Poly (Vinyl Chloride) (PVC) Plastic Pipe with a Cellular Core, Designation: F891.

Standard Specification for Corrugated Poly (Vinyl Chloride) Tubing and Compatible Fittings, Designation: F800.

Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings, Designation: F949.

Standard Specification for Poly (Vinyl Chloride) (PVC) Gasketed Sewer Fittings, Designation: F1336-91.

Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings, Designation: F679.

Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings, Designation: D2665.

Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40, Designation: D2466.

Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120, Designation: D1785.

Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series), Designation: D2441.

Standard Specification for Poly (Vinyl Chloride) (PVC) Ribbed Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter, Designation: F794.

Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, Designation: D2729.

Standard Specification for Socket-Type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80, Designation: D2467.

Standard Specification for Smooth-Wall Poly (Vinyl Chloride) (PVC) Plastic Underdrain Systems for Highway, Airport, and Similar Drainage, Designation: F758.

Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), Schedule 40 and Schedule 80, Designation: F480-90.

Standard Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80, Designation: D2464.

Standard Specification for 3.25-In. Outside Diameter Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings, Designation: D2949.

Standard Specification for Type PS-46 Poly (Vinyl Chloride) (PVC) Plastic Gravity Flow Sewer Pipe and Fittings, Designation: F789.

Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, Designation: D3034.

From the American Water Works Association (AWWA), 6666 West Quincy Avenue, Denver, CO 80235. (303) 794-7711:

AWWA Standard for Polyvinyl Chloride (PVC) Pressure Fittings, 4 Inch Through 8 Inch, For Water Distribution, published in 1991. Describes ANSI/AWWA standard C907-91.

CTL006655

Pipeline & Utilities Construction

PVC Pipe Becomes Utilities Standard

Technology has made PVC pipe a popular choice for utilities industry as a replacement for sewer, water lines

By Robert Walker, P.E.

Throughout much of this century, revolutionary changes in pipeline engineering and material selection have resulted from the introduction of plastic pipes. The revolution was born in polymer science and decades of technological refinement, while being nurtured by actual product performance and an ever-increasing understanding of plastic materials properties by specifying engineers.

The polymer that has achieved frontrunner status in this pipe revolution is polyvinyl chloride, or PVC. Resistance to chemical attack, long-term strength and high stiffness account for PVC's popularity for both pressure and non-pressure pipe applications. Throughout North America and most of the industrialized world, the use and availability of PVC pipe has grown steadily since the middle of this century. PVC has become the dominant pipe material for such major markets as the gravity flow and pressure sanitary sewer applications and for pressure water distribution. In North America, the total length of PVC water main and sanitary sewer installed each year exceeds that of all alternative pipe materials combined. North American PVC pipe fittings sales exceed 3.7 billion pounds annually. Such statistics are the result



An unidentified worker installs a PVC Ultra-Rib sewer pipe with a PVC fitting. This type of PVC pipe complies with ASTM Standard F794.

of a successful product history and multiple product attributes.

Water Distribution Usage

PVC water pipes are conservatively

estimated to comprise about 70 percent of all the buried water distribution pipes (12 inches or smaller) being installed in North America each year. PVC pipe's majority share in this very large pipe



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WFO

August 6, 1993

TO: Vinyl Institute Board Members
Vinyl Institute Board Representatives

FR: Bob Burnett

RE: International Joint Commission

CC: Issues Management Committee
Ad Hoc Advocacy Task Force

We are entering the final, critical weeks leading up to the October meeting of the International Joint Commission, to be held October 21-23, in Windsor, Ontario. As we approach that meeting, the outlook for industry is not good.

- ▶ We have been largely unable to influence the thinking of the IJC's commissioners, who appear to be letting their staff shape the Commission's position on sunseting chlorine chemistry.
- ▶ We appear to have been largely unsuccessful in neutralizing the position of the Commission's "Virtual Elimination Task Force," which is expected to complete this week its specific recommendations for eliminating chlorine chemistry. **The final report may include, among many other recommendations, a tax of up to \$300/kg on PVC in order to encourage use of alternative, more "environmentally friendly" materials.**

At this point in time, all indications are that without effective intervention, the Commissioners likely will accept the VETF's recommendations. Those recommendations will not have the force of law, but we expect them to quickly serve as a model for state and federal regulation and legislation. The implications, therefore, of the IJC's actions are both national and international. For instance, you may have already heard from CMA that President Clinton is on the verge of signing an executive order that contains a totally chlorine-free provision for paper purchased by the U.S. government. We expect Rep. Richardson, who has long pressed for legislation of this type, to quickly introduce some sort of "chlorine free" bill. Greenpeace has said, "The IJC lit up our lives."

Where Do We Go From Here?

Telling our story to the IJC has not worked. We need to go beyond the Commissioners, to those whom we believe can influence their thinking: the governors, the members of Congress, the statehouses, the media, the businesses. We need to tell them that a grave, long lasting and unjustified recommendation is about to be made about the future of the Great Lakes region, one that could result in massive job losses, crippling economic policies

and the extinction of countless valuable products — all without any likely tangible improvement in the Great Lakes environment.

That effort has already begun on a selected basis. Now, I am asking for your assistance to significantly increase that level of activity.

- 1) Since this issue ultimately affects all VI member companies, all members need to get involved. If you do not wish to serve as your company's lead contact on this issue, please identify the person you wish us to work with on these activities.
- 2) In addition, those companies with operations in the Great Lakes, (headquarters, R&D or plants) need to identify at least one person who can work with our ad hoc advocacy task force on lobbying. This may include meeting with your state and federal congressional delegations, other state officials, and your governor to discuss this issue, or writing them. For those of you who have government relations programs in effect in these states, our task force will work with your staff.
- 3) All VI members, especially those without operations in the Great Lakes, need to identify and enlist the support of a least one very significant customer located in the region, who can become involved in our lobbying efforts. The more candidates you can identify, the better.
- 4) If you have operations or a major customer in the states of Illinois, New York, Pennsylvania, Wisconsin or Indiana, we are asking you to work with the advocacy task force to make contact with the Senate Foreign Relations Committee, which controls the IJC budget. An initial contact has already been made with Senator Lugar's staff (R-IN), and there is some indication of interest in this issue, but we need more support.
- 5) We need as many industry representatives as possible to register for the October meeting in Windsor. Registration is limited. If industry lags on this, Greenpeace is likely to pack the house. We will be sending you registration information shortly, as soon as we receive it from the Council of Great Lakes Industries, the economic development trade association that is taking the lead in coordinating industry's participation in the October meeting.
- 6) Through the Chlorine Coordinating Council, industry is planning a series of "stake holder" briefings and media briefings in the 12 largest cities in the Great Lakes region. We will be asking your project coordinator to assist us in identifying the individuals who should attend these events (local politicians, other businesses, union members, academics and others with a stake in the future of chlorine chemistry.) Further calls to action will come out of these briefings (letters to the editor, letters to the IJC, etc.) that we may ask you to support.

Meredith Scheck will be coordinating this effort for the VI. Please call her today or fax her the enclosed form to let her know who from your company will be working with us on this critical effort. I cannot overemphasize the urgency of this request. If we do not act promptly, Windsor will be the beginning, not the end, of the campaign against chlorine chemistry.

I will keep you informed of all developments.



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**International Joint Commission
Vinyl Industry Mobilization
Response Form**

The following person will serve as the primary contact from our company on all matters related to the IJC:

Name: _____ Phone: _____
Location: _____

The following person handles state government affairs for our company in the Great Lakes region:

Name: _____ Phone: _____
Location: _____

The following person handles federal government affairs for our company on issues such as the IJC:

Name: _____ Phone: _____
Location: _____

Person completing form: _____
Company: _____

Please fax completed form to Meredith Scheck:
(201) 890-7209

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