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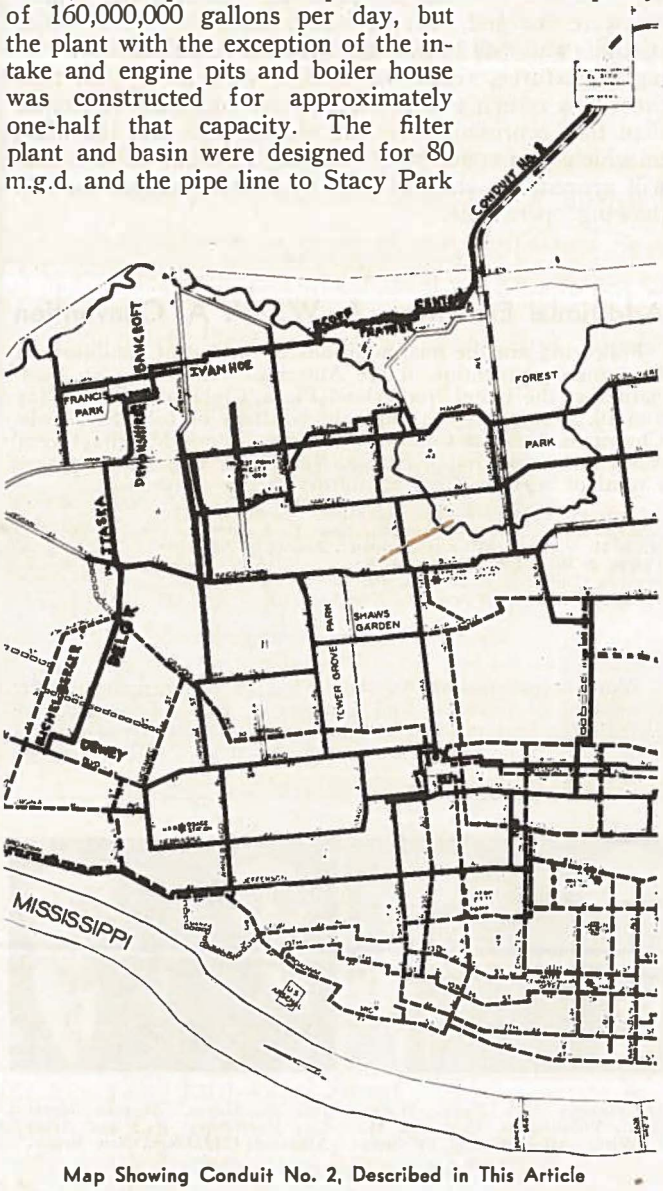
St. Louis Installs 13-Mile Conduit

St. Louis is having constructed approximately thirteen miles of steel pipe line of 60, 54 and 48-inch diameter. Of particular interest are the specifications for the work. This outstanding project is scheduled for completion in July of this year.

By CORNELIUS M. DAILY,
Water Commissioner of St. Louis, Mo.

IN November, 1933, the P.W.A. State Engineer urged all city departments in St. Louis to start all construction projects possible in order to relieve the unemployment situation then existing, and that the Federal Government would make a grant of 30 per cent of the cost of labor and material entering into the work.

The bond issue of 1923 of $12,000,000 for a new Water Works Plant at Howard Bend on the Missouri River, was expended for a plant of an ultimate capacity of 160,000,000 gallons per day, but the plant with the exception of the intake and engine pits and boiler house was constructed for approximately one-half that capacity. The filter plant and basin were designed for 80 m.g.d. and the pipe line to Stacy Park 60 m.g.d. The reservoir capacity at Stacy Park is 100,000,000 gallons with an outlet of 60 m.g.d. to the city distribution system.

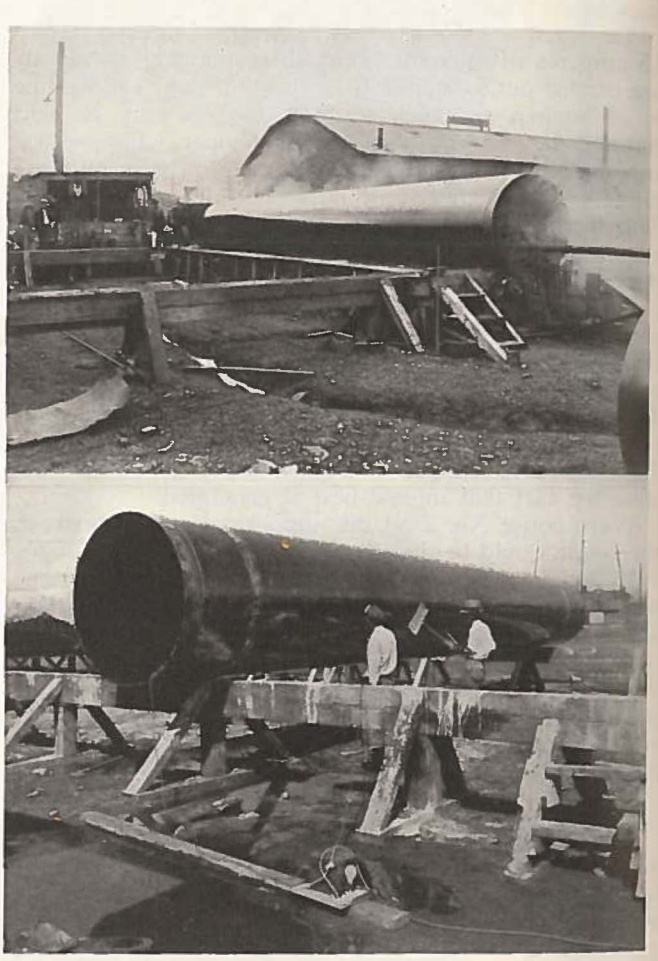


Map Showing Conduit No. 2, Described in This Article

Conduit extends from Stacy Park Covered Reservoir through streets as follows: Central, Prather, Ecoff, Ivanhoe, Bancroft, Childres, Devonshire, Itaska, Delor, Dewey and Eichelberger, connecting with the Compton Hill Service at Grand Boulevard.

Plans Prepared for Pipe Line

In order to take advantage of the storage capacity at Stacy Park and draw upon it for peak loads, a second 60-inch main was then under consideration, and with the thought of getting a grant of over $300,000, it was decided to prepare plans, specifications and estimated cost for this pipe line, consisting of:



Upper—60-Inch Pipe Being Coated on the Inside by the Spinning Method. Lower—Testing the Outside Coating by Means of an Electric Spark.

46,895 ft. of 60-inch main, steel shell ½-inch thick, or concrete shell 5½ inches.
11,015 ft. of 54-inch main, steel shell 7/16-inch thick, or concrete shell 5 inches.
9,985 ft. of 48-inch main, steel shell 7/16-inch thick, or concrete shell 5 inches.

The usual estimate was made giving the man-hours, material costs for the various items, and formal applica-

tion was made for the "grant." In due time the grant was allowed, and detailed plans and specifications were prepared and accepted by the P.W.A.

Types of Pipe Specified

Three types of pipe were specified:
1—A steel welded pipe, plain ends, 40 feet in length, connected by means of Dresser Coupling.
2—Reinforced concrete pipe, Lockjoint cylinder type.
3—Prestressed reinforced concrete pipe, without a cylinder, connected by means of Dresser Couplings.

The Government engineers insisted on a prestressed concrete pipe specifications to be included as an alternate, although this type of pipe is scarcely beyond the experimental stage.

On March 16, 1934, bids were received for furnishing the pipe in a yard in St. Louis, and for hauling and laying the pipe, all as shown in the table.

The low and successful bidders were: McClintic-Marshall Corporation, Bethlehem, Pa., for furnishing welded steel pipe in 40-foot lengths, and Dresser Couplings for field joints. Spiniello Construction Company, Newark, N. J., for hauling and laying the pipe.

Both contracts were awarded March 23, 1934, and McClintic-Marshall Corporation notified to begin work as soon as the contract was signed, but Spiniello was not notified to begin work until August 28, a delay of three months, occasioned by the delay of the P.W.A. approving the coating for the steel pipe.

Specifications for the Pipe

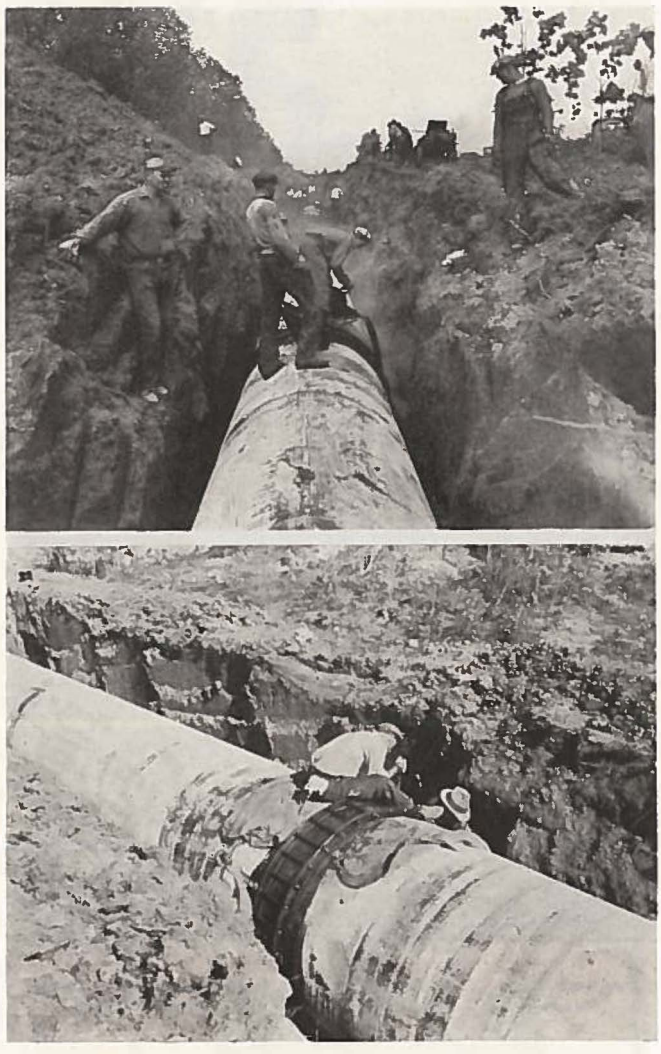
The specifications provide that the pipe is to be coated at the yard in St. Louis with a coal tar product, on the inside by the spinning process and the outside coating applied by means of a nozzle moving forward while the pipe slowly revolves.

The thickness specified for the inside coating was ⅛-inch, with a tolerance of 1/16-inch; the thickness specified for the outside coating was 3/32-inch, with a tolerance of 1/16-inch.

Work Started September 1, 1934

McClintic-Marshall Corporation let a sub-contract to Johns-Manville corporation for coating the pipe. The specifications stipulated that the coating material be approved by the Water Commissioner and the P.W.A. Engineer. The first sample submitted was rejected by both parties. Numerous samples of primer and coating materials were submitted, and various tests run and finally, on August 28, the first sample of coating submitted and a new primer was acceptable to the P.W.A., and the work started coating the pipe about September 1.

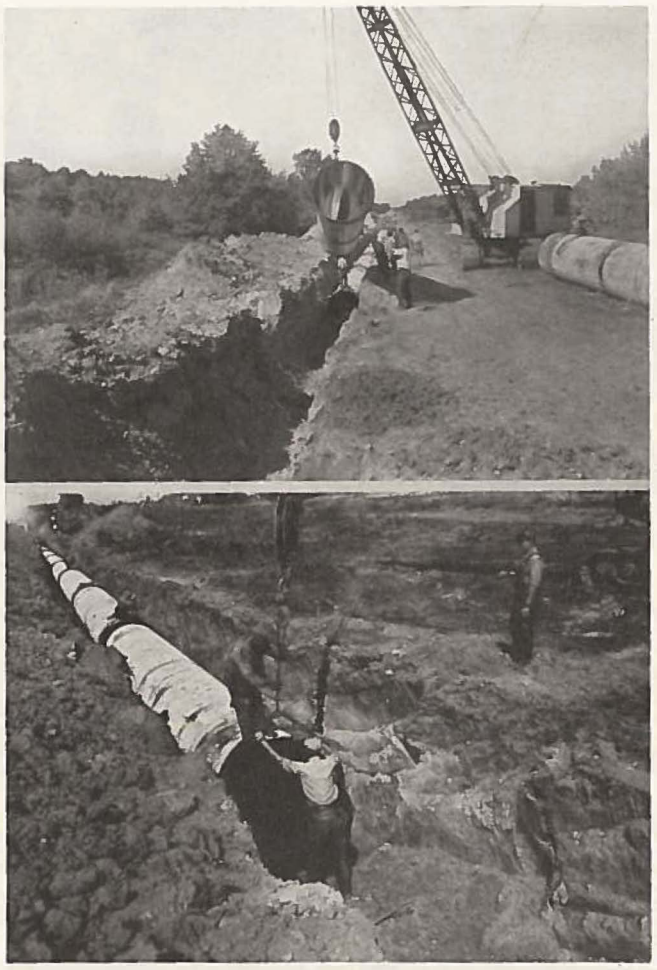
The apparatus for coating the pipe was improved by replacing the steel rollers with solid rubber tires, and in a few weeks the contractor was producing a very satis-



Upper—Applying Field Enamel Coat on Coupled Joint. Lower—Tightening Bolts in Dresser Couplings.

Bids Received for Furnishing Steel or Concrete Pipe — Pressure Conduit No. 2

Item	Quantities	McClintic Marshall Corp. Bethlehem, Pa. Amount	Alco Products Inc. N. Y. City Amount	National Tube Co. St. Louis, Mo. Amount	G. L. Tarlton St. Louis, Mo. Amount	Chicago Bridge and Iron Works Chicago, Ill. Amount	Granite City Steel Co. Granite City, Ill. Amount	J.P. Devine Mt. Vernon Ill. Amount	Babcock-Wilcox Co. N. Y. City Amount	Lock Joint Pipe Co. Ampere, N. J. Amount	Minder Const. Corp. Bonz-Kiel Const. Co. St. Louis, Mo. Amount
Type A 60" concrete cylinder pipe and pipe specials.....	46,895 lin. ft.	.....	.....	.....	539,292.50	.....	.....	.....	.....	504,121.25	.....
Type B 60" concrete pipe and pipe specials without cyl...	46,895 lin. ft.	.....	.....	.....	.....	.....	.....	.....	.....	.....	887,253.40
(Alternate) 60" Steel pipe and pipe specials	46,895 lin. ft.	498,962.80	508,810.75	541,168.30	.....	572,119.00	591.533.53	593,217.06	609,775.69	.....	.....
Type A 54" concrete cylinder pipe and pipe specials.....	11,015 lin. ft.	.....	.....	.....	126,672.50	.....	.....	.....	.....	111,251.50	.....
Type B 54" concrete pipe and pipe specials without cyl...	11,015 lin. ft.	.....	.....	.....	.....	.....	.....	.....	.....	.....	193,313.25
(Alternate) 54" Steel pipe and pipe specials	11,015 lin. ft.	98,033.50	101,007.55	110,260.15	.....	111,802.25	112,518.23	114,059.22	112,187.78	.....	.....
Tye A 48" concrete cylinder pipe and pipe specials.....	9,985 lin. ft.	.....	.....	.....	99,850.00	.....	.....	.....	.....	92,361.25	.....
Type B 48" concrete pipe and pipe specials without cyl...	9,985 lin. ft.	.....	.....	.....	.....	.....	.....	.....	.....	.....	157,862.85
(Alternate) 48" Steel pipe and pipe specials	9,985 lin. ft.	79,280.90	82,076.70	95,656.30	.....	89,865.00	80,369.27	92,896.45	88,047.73	.....	.....
	Totals.....	$676,277.20	$691,895.00	$747,084.75	$765,815.00	$773,786.25	$784,421.03	$800,172.73	$810,011.20	$707,734.00	$1.238,429.50



Upper—Lowering Pipe Into Trench. Lower—Installing Coupling Middle Ring on End of Pipe Section Already Laid.

factory coating. However, coal tar has a narrow range between the cold flow temperature and the temperature from which the material will become brittle and this range can be varied to higher or lower temperature by the addition or omission of coal tar oils.

Work progressed very satisfactorily from September 1 until November 15, when it was closed down by an order from the P.W.A. which was caused by some of the coating pealing off the pipe before laying, following a sudden change in temperature on October 28 and 29.

Manual to Govern Operation of Coating

After the work was shut down on the 15th of November, very stern orders were issued by the P.W.A., which later on were withdrawn, and a manual was written to govern the operation of coating, inspecting, and repairing the coating, and the manual was approved by Washington officials. On January 8, orders were received that the work may progress. Nothing has developed in the coating to lead an Engineer to believe that it would not be satisfactory. The coating forms a perfectly smooth interior finish.

The joints, which are made up of Dresser couplings, have been tested, on that portion of the line laid, amounting to about 18,000 feet. The average leakage amounted to less than a gallon per inch in diameter per mile of pipe.

Work is expected to start again in April and the work will probably be completed by the first of July, 1935.

Pennsylvania Operators Hold Meeting

Departing from its usual procedure, the Pennsylvania Water Works Operators' Association is experimenting with the plan of holding sectional meetings along the lines of the informal group meetings of sanitary chemists and bacteriologists which took place semi-annually. Seventy-five persons attended the first of the sectional meetings at Bellevue and Sewickley, in suburban Pittsburgh, on April 11.

An inspection was made of the zeolite water softening plants owned by the Pittsburgh Suburban Water Service Company, and the one operated by the Borough of Sewickley. The first is located on Neville Island and takes water from a number of shallow wells located at the head of the island. This plant is of the pressure type and is in charge of Harry Barton, Superintendent. The Sewickley plant takes water from an intake crib located underneath the river bottom. The zeolite filters are of the gravity type.

After an inspection of these plants, dinner was served in Sewickley. E. C. Trax, McKeesport, was the presiding officer. He introduced George L. Craig, President of the Board of Water Commissioners, who welcomed the visitors and gave a brief description of the local water system.

Dr. Harold L. Lang, Professor of Bacteriology, Carnegie Institute of Technology, was scheduled to give a talk but was unable to be present. A talk on the same subject was given by Gilbert L. Kelso, Chemist, Community Water Service Company, Greensburg.

The next sectional meeting in the western area will be held some time in October, while the annual meeting will be held at State College, June 26-28.

The meetings in the western part of the state are in charge of L. S. Morgan and M. E. Flentje, Greensburg, and E. C. Trax, McKeesport. For the eastern part, the meetings are directed by a group consisting of Harry J. Krum, Allentown; J. J. Shank, Waynesboro, and R. I. Dodd, Chester.

Twenty-five Years Ago

THE following items, reprinted from the files of Fire and Water Engineering of 1910, *show a little light on some of the happenings in the water works field a quarter of a century ago*:

Akron, Ohio, now desires a municipal water system.

* * *

New Orleans, La., is amending its water rates.

* * *

Sudbury, Mass., has petitioned the legislature to establish a water system and to take water from any local stream.

* * *

The South Jersey Water Company has been incorporated for Camden with a capital of $125,000.

* * *

The condition of the water supply at Racine, Wis., is to be investigated by the Board of Health.

* * *

A committee has been appointed at Central Falls, R. I., to ascertain the cost of constructing a municipal water system.

* * *

Wheeling, W. Va., proposes to install a 20 m.g. pump at the water works.

* * *

Davenport, Wash., is replacing two miles of wooden mains with steel pipe. The city is also extending its water system southward.

* * *

At Springfield, Mass., contracts are being prepared for two lines of 30-inch mains for the Little River water supply system that is to cross the Connecticut River.

* * *

In accordance with the newly adopted sprinkling laws at Colorado Springs, Col., only two hours a day are now allowed for the use of sprinklers.

* * *

At Woonsocket, R. I., new water rates have been decided as follows: 15c per 1,000 gallons for manufacturing and elevator purposes; 25c per 1,000 for domestic use with a minimum rate of $8 a year.

* * *

The water contract with Indianapolis requires that the company shall be paid $45 a year for all fire hydrants and public drinking fountains. It shall lay at least 40,000 feet of new main during any one year, while the city shall take at least one hydrant for every 500 feet of main.