

CAPCO INSTITUTIONAL MEMORY PROJECT

TO: Trustees of the ASARCO Asbestos Trust

FROM: Porzio, Bromberg & Newman, P.C.
Stutzman, Bromberg, Esserman & Plifka, P.C.

DATE: November 19, 2012

Porzio, Bromberg & Newman, P.C. (“Porzio”) was national asbestos defense counsel for Capco from the early 1980’s through June 2003. In its role as national counsel, Porzio defended Capco in asbestos-related lawsuits throughout the United States. The *Capco Institutional Memory* project was initially begun by Porzio in the 1990’s to collect information necessary to defend Capco in asbestos product litigation. This memorandum was initially compiled in the mid-1990’s for purposes of identifying locations in the United States where Capco asbestos cement (“A/C”) pipe was utilized. It has been updated and the contents verified over the past year or so at the request of the ASARCO Asbestos Trust.

Capco sold its A/C pipe to three types of customers: direct end-use customers (*e.g.*, municipalities), pipeline contractors, and distributors. It also shipped A/C pipe to storage yards located in Arizona, Texas, and California.

The records that Capco retained do not offer a complete picture of Capco’s sales history. The information compiled herein and in the two binders containing state-by state-sales charts has been obtained through a review of Capco’s original customer cards, sales database, and sales department files and through interviews with various Capco personnel, as outlined more fully below.

As part of the initial project, Porzio’s goal was to locate as many of Capco’s sales-related records for its A/C pipe as it could. These records included customer cards and sales department files, containing records such as invoices and bills of lading. As part of this project, Porzio employees and William R. Perrell, a former Capco employee (as discussed further, below), both sought to gather sales records from Capco’s distributors in various states. Initially, Porzio focused its efforts to locate and identify sales records on the key states in which Capco had been, or was, involved in asbestos-related product litigation.

Porzio employees reviewed Capco sales information that was available on customer cards, computer records, and sales department files, as well as file memoranda regarding Capco documents and interviews with Capco employees. Based on copies of customer cards that were available at the time in the mid-1990’s, Porzio employees prepared sales summaries in chart form for each state, and provided those summaries to Mr. Perrell for his review and authentication. Porzio employees also recorded the names and addresses of Capco territory managers based upon information provided by Mr. Perrell.

On September 29 and 30, 1997, Mr. Perrell visited Porzio's office in Morristown, New Jersey to discuss various issues relating to A/C pipe sales and Capco's use of distributors. Mr. Perrell was employed by Capco from 1965 through February 1997, and held a variety of positions, including General Sales Manager and Vice-President, Sales. Thereafter, Mr. Perrell continued in the role of consultant for Capco and ASARCO. In addition, Mr. Perrell served as officer and sole director of Capco from 1997 through the effective date of the confirmed plan of reorganization on December 9, 2009.

At the September 1997 meeting, Mr. Perrell and Porzio employees discussed each region and each state (Capco categorized the states into different regions), including the type of market, Capco's market share, competitor's pipe, territory managers and their respective territories, distributors, sales agents, storage yards, contracts, documents or records available, and specific customers. The purpose of that 1997 interview was to memorialize information on Capco's sales history, with emphasis on state-by-state customers and contacts. The information in this memorandum is primarily from that visit and from subsequent follow-up telephone calls and meetings with Mr. Perrell by Porzio employees throughout 1997, 1998, and 1999 (along with more recent activities performed at the request of the ASARCO Asbestos Trust, discussed below).

This memorandum was not completed in the 1990's, as Porzio stopped work on it because of litigation-related issues. At the time Porzio stopped working on this memorandum in 1999, the memorandum and sales charts contained information about Capco's sales of A/C pipe on a state-by-state basis, though that information was not complete.

As noted, Porzio ceased being national counsel for Capco as of June 2003 and provided all Capco information and documents that it had to Capco's new counsel, the Brown McCarroll firm. Brown McCarroll represented Capco from approximately 2003 to early 2004. At some point in early 2004, Brown McCarroll ceased its representation of Capco and transferred all Capco records to Capco's new counsel, Baker Botts. At some time during Brown McCarroll's or Baker Botts' representation of Capco, the existing Capco records were shipped to ASARCO's storage facilities in Phoenix and Sacaton, Arizona, where the Capco records became intermingled with thousands of other boxes of documents belonging to ASARCO and its various other subsidiaries.

Capco filed its bankruptcy petition on April 11, 2005. The ASARCO Asbestos Trust was created on December 9, 2009, the effective date of the confirmed plan of reorganization. In September 2010, Porzio was contacted by representatives of the ASARCO Asbestos Trust for the purpose of providing assistance with respect to Capco's sales of A/C pipe. On two occasions in 2010, Porzio attorneys and attorneys from Stutzman, Bromberg, Esserman & Plifka, P.C. ("SBEP"), together with personnel from Verus Claims Services, LLC ("Verus"), went to ASARCO's storage facilities in Arizona and exhaustively reviewed the thousands of boxes stored at those locations. Through these efforts, Porzio, SBEP, and Verus reviewed and collected all existing Capco records relevant to Capco's sales of A/C pipe, as well as other sales-related information maintained by Capco. Those documents included virtually all of the original Capco customer cards. The documents were then shipped to Verus and stored. Originally, Capco kept customer cards containing sales information for each customer beginning in July

1965 and continuing until 1987. Starting in 1987, Capco maintained its records electronically in a database that Porzio has had in its possession since 1997. (The database was actually in use before 1987, but the pre-1987 information is unreliable.). The 1987-1994 electronic database is comprehensive and reliable with respect to all A/C pipe sales during that period.

In early 2012, Porzio employees generated reports of Capco's computerized asbestos sales records for the purpose of updating this memorandum to reflect post-1986 sales for various states. Porzio employees also verified that the sales information compiled in the state-by-state Capco sales charts as part of the project in the 1990's matched the sales information contained in this memorandum, and corrected the few minor inconsistencies that were identified. Those charts were updated and the contents verified by Porzio and Perrell, and are contained in notebooks labeled, "CAPCO SALES VOL. I" and "CAPCO SALES VOL. II".

After Porzio employees completed those revisions to this memorandum, it was sent to Bill Perrell for his review. Kenneth R. Meyer of Porzio and Jacob Newton of SBEP met with Mr. Perrell for two days in March 2012. During those meetings, Meyer, Newton, and Perrell discussed all of the sales information contained in the memorandum and Perrell offered clarifications, confirmations, and corrections as to certain information contained therein.

Following the meeting with Perrell, Porzio and SBEP revised the memorandum to incorporate his changes and corrections, which included proper classifications for direct customers and/or distributors and/or contractors. Additionally, in April-May 2012, Porzio employees reviewed the additional sales records that had been located by Porzio, SBEP, and Verus in the Arizona record repositories, and located the original customer cards that Porzio had not previously had copies of (for Oklahoma, North Carolina, South Carolina, and Louisiana). The memorandum was then revised again to include the additional sales information revealed in the review of sales records for those states.

Porzio employees thereafter compared Capco's original customer cards for all states with the state-by-state sales charts. In performing that comparison, Porzio identified certain states in which the sales chart had missing customers and/or missing sales information with respect to A/C pipe sales. Most states did not have those types of discrepancies.

It was not surprising that certain states had missing customers and/or sales information. When this memo was started in the 1990's, Porzio employees were working off of photocopies - not originals - of the Capco customer cards, and Porzio never had a complete set. Thus, the discrepancies between the original customer cards and the sales summary charts are explained not only by the fact that Porzio did not have a complete set of customer cards when the charts were originally prepared in the 1990's, but also by the fact that Porzio employees were working off of photocopies, and illegible or incomplete information was frequently encountered in those copies.

Following the completion of the comparison of the original customer cards with the state-by-state sales charts, Porzio employees updated the sales charts and made them complete by filling in missing customers and related A/C pipe sales data. Additionally, while Porzio employees were comparing the original customer cards to the sales charts as prepared in the

1990's, Porzio discovered that the sales charts for several states provided a cumulative total of A/C pipe and PVC pipe sales for each customer, rather than separate totals for A/C versus PVC sales. For these states, Porzio employees, working off of the information contained in the Capco customer cards, charted and tallied the A/C pipe sales for each customer in the sales charts.

After completing the review of the original Capco sales cards and modifying the state-by-state sales charts, in August 2012 Porzio forwarded the revised sales charts for certain states to Perrell to identify whether the customer was a contractor, distributor, or direct sale. (This identification project was completed for the other states during the meeting with Perrell in March 2012.) Perrell completed the review and returned the revised charts to Porzio, at which time Porzio updated the sales charts to reflect those changes. Further, in September and October 2012, the state-by-state sales charts were further updated to segregate all A/C pipe sales from the PVC-only sales, and the memorandum was finalized and again reviewed by Perrell for accuracy. Additional work was done by Porzio in November to correct minor inaccuracies in this memorandum and the sales charts (CAPCO SALES VOL. I and CAPCO SALES VOL. II) and the final versions of these were approved by Mr. Perrell in November 2012.

The sales charts known as CAPCO SALES VOL. I and CAPCO SALES VOL. II also include printouts for the 1987-1994 sales database. Perrell was not asked to review the 1987-1994 database records in order to distinguish distributors from contractors and direct sales, because the data includes the "ship to" addresses and thus, for the vast majority of entries, the location where the pipe was used is known.

The two notebooks entitled CAPCO SALES VOL. I and CAPCO SALES VOL. II represent the most comprehensive source of Capco's domestic A/C pipe sales information for the period from June 1965 to 1987. The electronic Capco database represents the most comprehensive source of Capco's domestic A/C pipe sales data for the period from 1987-1994. This Memorandum provides some general background information regarding Capco's A/C pipe.

Capco Corporate History

Cement Asbestos Products Company (“Capco”) was formed in 1963 as a joint venture between Woodward Iron Company, an Alabama manufacturer of cast iron pipe and cement, and ASARCO LLC, a copper mining company that also owned a subsidiary that mined asbestos in Canada. Woodward Iron was the largest cast iron pipe company in the U.S. during the 1960’s and had 23 divisions. While William Bond was the president of Woodward Iron, he decided that he wanted to expand Woodward Iron into the water works industry. During this time, the options available were in the manufacturing of A/C, ductile or cast iron pipe, with ductile being the most expensive of the choices. PVC pipe had not yet been developed for use in the water works industry. Johns-Manville, Flintkote and CertainTeed were the only U.S. manufacturers of A/C pipe at the time.

Mr. Bond was a member of the Board at ASARCO at the same time that he was President of Woodward Iron. ASARCO and Woodward Iron agreed it would be in both companies’ best interest to form and jointly operate Capco. ASARCO’s subsidiary, Lake Asbestos of Quebec, Ltd. (“LAQ”) supplied much of the asbestos, while Woodward Iron furnished cement. Initially, ASARCO owned 40% and Woodward held a 60% share of Capco. In 1969, when additional capital was needed to build the new Van Buren plant, the ownership of Capco changed to ASARCO, 49%, Woodward, 51%. In October 1974, Capco became a wholly owned subsidiary of ASARCO.

In June 1980, the company name was changed from Cement Asbestos Products Co. to Capco Pipe Company, Inc. Capco had been used as the brand name since 1969 or earlier.

Capco’s first plant was built in Ragland, Alabama and opened in 1965. Capco manufactured its first A/C pipe at Ragland on May 13, 1965 and tested its first pipe on June 11, 1965. The first shipment of A/C pipe was released on July 15, 1965. Ragland made 4" to 16" A/C pipe and used a wet process. This plant manufactured, on average, 35,000 tons of A/C pipe per year. At most, Ragland could produce 40,000 tons per year. The variation in production depended upon the class of pipe being made. Capco’s Ragland plant closed in 1982.

In 1969, Capco opened a second pipe manufacturing plant once operations at Ragland reached capacity. When Alan Toothacre, the mayor of Van Buren, Arkansas, discovered that Capco was interested in property in nearby Ft. Smith, he tried to sway Capco into building a plant in Van Buren. S. Davis Weaver, Capco’s President at that the time, eventually decided to build the plant in Van Buren. ASARCO agreed to fund the construction, but, as noted above, ASARCO demanded that its share of Capco be increased to 49%.

Capco’s Van Buren plant was the last A/C pipe plant built in the U.S. It was a state-of-the-art facility. Capco manufactured PVC pipe as well as A/C pipe at this facility. Van Buren used a dry process and manufactured 4" to 24" A/C pipe. This was due to a demand for larger diameter pipe in the Western states. Only Johns-Manville made a larger diameter pipe; they manufactured up to 36" A/C pressure pipe. The Van Buren plant could manufacture up to 50,000 tons of A/C pipe per year. This plant was in operation until 1993, although by the early 1990’s Van Buren made A/C pipe only intermittently (demand was low so production was only a

few days per month). Mr. Perrell had a good rapport with the Van Buren staff, and is very familiar with the Van Buren operations.

In 1994, ASARCO sold Capco's assets, after A/C pipe operations at Van Buren were shut down in September 1993 (Capco's last major shipment of A/C pipe went to Scottsdale, Arizona in 1993 and small shipments of remaining inventory went to various customers through March 1994). Samuel C. Parris was President of Capco at the time the company ceased A/C production. A group of employees, including Mr. Perrell, attempted to raise the funds to purchase the remaining PVC operations, *i.e.*, three plants, in Van Buren, Arkansas, Litchfield, Illinois and Evansville, Indiana. However, a company from Taiwan, Westlake Group, purchased Capco's PVC assets in August 1994, creating a new company named North American Pipe Company (NAPCO). Westlake had its headquarters in Houston, but its parent company had a very large PVC business in Taiwan. Westlake allowed all Capco employees to continue working for NAPCO. Mr. Parris remained with the new company as Vice President/General Manager, while Mr. Perrell remained an ASARCO employee and served for a year as consultant and Director of Sales at NAPCO.

On April 11, 2005, Capco filed a petition for relief under Chapter 11 of the United States Bankruptcy Code. The Capco bankruptcy case was jointly administered with the bankruptcy cases of ASARCO, LLC, and various ASARCO affiliates under Case No. 05-21207, pending in the United States Bankruptcy Court for the Southern District of Texas. A joint plan of reorganization for all the debtors was confirmed in November 2009 and went effective on December 9, 2009. Pursuant to the confirmation order, all of ASARCO's, Capco's, and the other debtors' asbestos-related liabilities have been channeled to the ASARCO Asbestos Trust.

A/C Pipe Manufacturers and Industry Data Reporting

A/C pipe was developed in 1913 in Italy by a man named Mazza; Johns-Manville brought the product to the United States in 1929. The three ingredients are Portland cement, silica and asbestos; the asbestos fibers are locked in a cement matrix and act as miniature reinforcing rods, providing structural strength. During World War II, the A/C pipe market grew stronger because of a lack of metals. Manufacturers tried many products to replace asbestos, but none proved to be cost effective or an adequate replacement.

The four U.S former manufacturers of A/C pipe, Johns-Manville, CertainTeed, Flintkote and Capco, founded the Asbestos Cement Pipe Producers Association (ACPPA) in 1972 (the year OSHA developed asbestos regulations). As of the late 1990's there were 23 members throughout the world. At that time, A/C pipe was still widely used in Third World countries and new plants were still being built.

When Capco first entered the U.S. A/C pipe market in 1965, Johns-Manville held a 60% share of the market. Johns-Manville maintained this 60% market share through the mid-1970's, and consistently maintained the largest market share.

The second largest manufacturer of A/C pipe in the U.S. was CertainTeed, until 1963 formerly known as Keasbey & Mattison, a T&N affiliate. CertainTeed had about 30% of the U.S. market share for A/C pipe until the late 1970's/early 1980's.

Until the mid-1970's, Capco and Flintkote shared the remaining 10% market share about equally.

By the 1980's, as other A/C plants began to cease operations, Capco controlled 20% of the A/C underground water pressure pipe market. By 1993, as the last U.S. manufacturer of A/C pipe, Capco controlled nearly 100% of the negligible market.

By using certain patented processes that were not available to Capco, Johns-Manville and Flintkote could make A/C pipe that was thinner-walled and smaller-diameter than Capco's A/C pipe.

As detailed in the CAPCO SALES VOL. I and CAPCO SALES VOL. II, Capco had A/C pipe sales to all seven U.S. reporting regions, including Hawaii and Alaska, but not during every year. Capco had a very difficult time accessing the Canadian market due to different pipe specifications. Capco's largest markets were California and Texas, followed by Florida. Certain cities did not use A/C pipe. For example, Birmingham, Alabama did not use A/C pipe because there were 7 cast iron factories in Birmingham. In cities such as Fort Worth, Texas, cast iron pipe had to be regularly replaced due to the corrosive properties in the ground. Even though A/C or any non-metallic pipe would not have corroded, Fort Worth refused to allow the use of A/C pipe.

The largest user of A/C pipe was the U.S. Government's Bureau of Reclamation, which managed Federal properties, including Indian reservations. The Bureau of Reclamation preferred non-metallic pipe. Its projects included dams and other similar large-scale projects. Somewhat similarly, the Farmers Home Administration (FHA) wanted to give all rural areas good drinking water, so they funded the rural installation of water pressure pipe. The FHA later also funded sewer lines. Projects sponsored by both the Bureau of Reclamation and the FHA often used A/C pipe.

As of the late 1990's, there were still a few towns in the United States that used A/C pipe, one of which was Phoenix. The reason for its continued use was that the weather was often too hot to use PVC pipe. When using PVC, water temperatures cannot rise above 72°F. This also is referred to as the "37th Parallel Rule", in which states and cities below the 37th Parallel do not use PVC pipe due to the heat. Further, Florida has a flat terrain and high water table which requires that sewage be pumped through pumping stations. The pumping action heats the sewage sufficiently to produce hydrogen sulfate gas, which degrades the cement component of A/C pipe. Consequently, metal or some other type of non-cement pipe must be used for sewers in Florida. As of the late 1990's, most A/C pipe was obtained from plants in Mexico. At one time, several West Coast and Mid-West cities, including Houston, San Antonio and Detroit, used A/C pipe exclusively due to expansion of the cities following World War II.

Types of Underground A/C Pipe

Capco manufactured both A/C underground (1) water pressure pipe, which includes distribution pipe, transmission pipe, and irrigation pipe, and (2) sewer (non-pressure) pipe, which can be used for sewers, storm drains or well casings. Capco manufactured both in 13-foot lengths, with 6'6" half lengths and 3'3" quarter lengths—the standard sizes for all A/C pipe. Both are heavy duty types of A/C pipe, generally installed by pipeline contractors using earthmoving equipment. Within both types there are different classes of pipe, according to how much strength was needed, but all A/C pressure pipe is thicker-walled (heavier) than A/C sewer pipe.

In its A/C pipe operations, Capco made mostly A/C pressure pipe, which included two main sub-varieties known as transmission pipe (to convey water under high pressure from its source to a point of distribution), and distribution pipe (to distribute water under medium pressure, such as under streets in a subdivision). In addition, Capco dabbled in irrigation pipe, another type of A/C pressure pipe. According to Mr. Perrell, the government provided a certain amount of annual funding to create irrigation systems. A shallow ditch was created, and the pipe was placed in the ditch and then covered. Every several hundred feet, a T was inserted and turned upwards with an alfalfa valve on top to allow water to exit the pipe and flood the field at a specific time. The pipe used was generally 16 or 18 inch pipe. The alfalfa valve was a 12 inch valve and the T was also 16 or 18 inches. This carried non-potable water. Irrigation pipe was not a big factor in Capco sales. This type of pipe could only be laid two times per year between crops. Capco was late getting into this market and held less than 1% of sales. Johns-Manville had a large share of the market.

A/C water pressure pipe and A/C sewer pipe could not be used interchangeably, as pressure pipe was thicker-walled. Capco A/C sewer pipe was 25% lower in price than A/C water pressure pipe due to less material. Capco was able to manufacture A/C water pressure pipe down to a smallest inside diameter of 4", but was unable to make A/C sewer pipe smaller than 6". During 1965, Capco made one order of 3" A/C pressure pipe in the first year of manufacture at Ragland, but the plant encountered so many problems in doing so that the plant manager sold the 3" mandrels for scrap iron so that he would never have to manufacture 3" A/C pressure pipe again. Capco could not manufacture A/C pipe that was either very small diameter or very thin walled because it did not have the electrolytic loosener technology used by Johns-Manville.

"Transite" A/C pipe, as noted previously, was the Johns-Manville brand name for many of its A/C products. The name transite also came to be used generically to refer to any brand of A/C pipe, or to refer to certain other types of asbestos-containing products, including flat or corrugated transite board. Capco did not manufacture or sell the lighter-weight, thinner-walled types of "transite" A/C pipe, such as flue pipe, vent pipe (for gas-fired water heaters), electrical conduit, or other types of indoor A/C pipe. Those products were made primarily by Johns-Manville. Capco could not manufacture those lighter types of transite pipe because Capco was not licensed to use the necessary patents, including Johns-Manville's patent for an "electrolytic loosener" process to permit removing thin-walled or small diameter A/C pipe from the mandrel on which it was formed. Capco instead used an air lance to remove the pipe from the mandrel,

forcing air under the pipe. Capco averaged 3-5% of reject pipe for sizes above 4" (and higher for 4" pipe).

For the same reasons that Capco could not manufacture A/C indoor pipe, Capco also could not manufacture A/C "building sewer pipe," a product used to connect houses to the main sewer line under the street. Capco did manufacture the larger underground A/C sewer pipe used for the main sewer lines under streets, but Capco never manufactured the smaller connecting lines to the houses. Johns-Manville, among others, manufactured and marketed a product called Transite "building sewer pipe," in sizes around 4" – 6" inside diameter, in 10-foot lengths (with 5-foot half lengths). Capco, however, did not manufacture A/C sewer pipe smaller than 6" inside diameter, and Capco always made its A/C pipe in 13-foot lengths (with 6'6" half lengths). In the U.S., only Johns-Manville and Flintkote manufactured A/C pipe in 10-foot lengths for indoor A/C pipe and A/C building sewer pipe, which was used for several purposes including drain pipe, vent pipe and electrical conduit.

Capco A/C pipe was not used for underground service lines (i.e., the lines running to individual houses from the water main under the street). Service lines in residential areas generally ran between ¾" and 1½" inside diameter. For many years, galvanized iron was the material principally used for service lines. In later years, polyethylene and polybutylene and sometimes copper were used. Service lines were typically installed by the plumbing contractor as opposed to the pipe line contractor. The pipe line contractor's contract stops at the corporation cock and the plumbing contract starts there. If a building was very large, then the service off of the main water line would be taken by the mechanical contractor who had the responsibility for the water and sewage in the building. The material would in all probability be galvanized iron or copper.

Capco's involvement in the A/C sewer pipe market was very limited. Mr. Perrell estimates that Capco's share of the A/C sewer pipe market probably did not reach 3%. It was Capco's policy to quote A/C sewer jobs only: (1) in combination with an A/C water pipe job, and then only if the A/C sewer pipe was in sizes that Capco could manufacture with a reasonable amount of fittings that they could manufacture; (2) if quoting to a contractor that consistently bought A/C water pipe from Capco, Capco would quote A/C sewer pipe in order to maintain a good relationship with the customer; or (3) if furnishing pipe to distributors that handled Capco A/C water pipe and must have A/C sewer pipe in their market area (limited to a few market areas).

Mr. Perrell noted that by following the quoting policy above, Capco missed quite a bit of A/C sewer pipe business and also sacrificed some A/C pressure pipe business. For this reason, Capco had to furnish A/C sewer pipe in order to gain A/C pressure pipe sales in New Jersey, Virginia, Ohio, Arkansas, West Virginia, Indiana, Illinois, the Carolinas and Texas. (At that same time Capco had approximately 21% of US A/C water pipe market.) During the same time period, A/C sewer pipe accounted for only 10% of the total sewer pipe sales in the United States. Clay and concrete pipe had a majority of the sewer pipe market.

Drain, Vent and Electrical Conduit A/C Pipe

Generally, Capco made only underground A/C pipe and never manufactured any of the types of A/C pipe used in or near buildings (*e.g.*, air duct pipe, industrial vent pipe, electrical conduit, drain pipe, building sewer pipe, etc.).

Different types of couplings were used for underground A/C pipe and for the several types of A/C pipe used in buildings. Capco did not manufacture the couplings used for the various types of A/C pipe inside of buildings. For Capco's underground A/C pipe, the pipe ends were precisely machined (tapered) and were joined by pushing them together with A/C couplings containing rubber sealing gaskets; those connectors were watertight and relied on gravity and burial to keep them in place. Some other types of above-ground A/C pipe, produced by other A/C pipe manufacturers, were used with glued-on couplings (industrial vent pipe) or with wedged-on plastic sleeves (electrical conduit).

Capco A/C pipe was shipped from the plant with an A/C coupling attached, which would not have been suited for use as air duct or electrical duct. Air duct is joined by a Stevenson Coupling, which consists of an impermeable rubber sleeve and two stainless steel clamps. Electrical conduit is joined by a wedged PVC coupling. Capco did not manufacture electrical conduit A/C pipe for several reasons. Electrical conduit pipe was specified in 10' lengths and Capco did not sell 10' length pipe. (Johns-Manville had at least one 10-foot machine at most of its pipe plants). Electrical conduit used a plastic sleeve instead of a coupling to keep the pipe semi-watertight. The plastic sleeve resembled a styrofoam cup. The sleeve was black and had a wall thickness of $\frac{1}{8}$ ". There were special specifications in the electrical codes that governed use of this type of pipe, and it had to conform to ASTM and American Association of Electrical Engineers standards that differ from those for A/C pipe. Capco's pipe was never approved by those organizations for use as electrical conduit pipe.

Florida Power & Light Company used A/C pipe for electrical conduit ("Korduct") beginning in 1974, but Capco never manufactured this type of A/C pipe. Johns-Manville was the only manufacturer of asbestos-cement pipe manufactured for that use. Mr. Perrell stated that to manufacture electrical conduit, companies needed to comply with an ASTM specification regarding manufacturing processes and the final product. In addition, Florida Power & Light had its own particular specifications for Korduct. Mr. Perrell stated that sewer and water A/C pipe would not have been used as Korduct because it would have been too expensive (and too heavy).

Johns-Manville produced brochures indicating that it marketed two types of electrical conduit pipe. One was the thin-walled pipe that Capco was unable to manufacture in 10' lengths, and the other was Johns-Manville's A/C sewer pipe by another name, in 13' lengths, for large underground electrical conduits. Capco tried at one time to make class 1500 A/C sewer pipe, which would have had a similar thickness to the thin-walled electrical conduit pipe produced by other manufacturers, but Capco could not extract the pipe from the mandrel. According to Mr. Perrell, it would be extremely unlikely for anyone to use the heavier Capco pipe for electrical conduit because it would be much heavier for the workmen to handle and was more expensive. Johns-Manville made both 2" and 3" A/C electrical conduit. The 2" was not as popular as the 3".

The conduit was easier to handle due to its shorter length and lighter weight. According to Mr. Perrell, PVC, not A/C, was predominately used for electrical conduit beginning in about 1980.

Industrywide Standards for Different Types of A/C Pipe

Several standard-setting organizations established A/C pipe performance standards, which Capco's A/C Pipe had to meet for it to be acceptable to customers. Standards for A/C water pressure pipe, and for A/C sewer pipe, were established by the AWWA, the American Society for Testing Materials ("ASTM"), Underwriters Laboratory ("UL"), and the International Organization for Standardization ("ISO"). In addition, some customers established their own standards.

Capco not only could not make thin-walled A/C pipe, but Capco also did not even try to obtain approval of its A/C pipe under any relevant U.S. standard-setting organization's specifications regarding indoor types of A/C pipe. There were different standards for the different types of A/C pipe. For example, there were separate standards for A/C electrical conduit. Mr. Perrell stated that if a contractor tried to use Capco A/C pipe as electrical conduit, it would not have passed inspection because Capco pipe was never approved for that use (per ASTM specifications, etc.).

Capco's A/C Pipe Material Specifications

Capco produced the following A/C pipe sizes.

Capco's A/C water pressure pipe (including both distribution pipe and transmission pipe) was made in inside diameters of 4, 6, 8, 10, 12, 14, 15, 16, 18, 20, 21 and 24 inches. The pipe was made in a number of strength classes according to the maximum operating pressure to be used. There were three strength classes of distribution pipe (100, 150, or 200 pounds per square inch), and Distribution Class 100 was the thinnest A/C water pressure pipe that Capco could manufacture. Distribution Class 150 accounted for roughly 80% of the market. Capco's A/C transmission pipe had higher strength classes and, accordingly, was progressively thicker than the distribution pipe. Capco manufactured transmission pipe in the following strength classes: T-30, T-35, T-40, T-45, T-50, T-60, T-70, T-80, and T-90, *i.e.*, respectively 300 through 900 pounds per square inch.

In 1975 or 1976, Capco was just beginning to investigate entering the A/C transmission pipe market. Capco didn't produce any transmission pipe until that time.

Capco's A/C sewer (non-pressure) pipe was made in inside diameters of 6, 8, 10, 12, 14, 15, 16, 18, 20, 21, and 24 inches. It was made in four strength classes according to the crush strength required (*i.e.*, 2400, 3300, 4000, or 5000 pounds per square foot). Capco attempted to make smaller diameter sizes, but as noted previously Capco found that it did not have the technological capacity to make A/C sewer pipe smaller than 6", in part due to the manufacturing technology patents held by Johns-Manville. Capco also tried to make a thin-walled class 1500 sewer pipe, but was unable to do so.

Consistent with industry practice, Capco manufactured both A/C pressure pipe (water pipe) and A/C non-pressure pipe (sewer pipe) in standard 13' lengths (each sold with a coupling attached at one end), plus ½, ¼, and ⅛ lengths. The shorter lengths of A/C pipe, often referred to as “includes”, could be formed either as MEEs (milled at each end, just like the standard 13' lengths), or MOAs (milled over all, tapering the entire length).

CertainTeed cut different lengths of pipe and referred to the lengths by names different than those used by Capco and Johns-Manville. CertainTeed used “FM” or Fully Machined, instead of MOA.

In general Capco did not make its A/C pipe into accessory fittings (T's, Y's, adapters, etc.).

Installation and Cutting of Finished A/C Pipe

Each 13' length of Capco A/C pipe was provided with a coupling on one end. Capco's couplings were made of the same material as the A/C pipe. Capco pipe was forced together by hand. Pipe layers connected pipe pieces in the ditch by inserting a rubber gasket into the open end of the coupling attached to the pipe. The open end of the coupling and the end of the pipe length to be added would be lubricated so that the pipe could be easily inserted deeply into the coupling. The shoulders ensured that the pipe ends remain separated from each other. Couplings for sewer pipe and water pressure pipe were watertight; although the plastic couplings used on storm drains were not because they did not have to be. After 1965, all couplings, pipe and gaskets made by each of the U.S. A/C pipe companies were interchangeable.

For the most part, A/C pipe was installed simply by joining the pipe with the couplings provided by the manufacturer. On occasion, however, field cutting (sometimes followed by field lathing) was necessary for making certain types of connections to other pipe. Capco brochures and installation guides recommended cutting the pipe with a snap-cutter (similar to a pizza cutter, with rounds blades set in a chain that is tightened and twisted around the pipe to cut it). Another method of cutting pipe, considered improper by Capco personnel, was by using a Carborundum saw. The Capco installation guides and sales brochures did not recommend this practice.

According to Mr. Perrell, Capco purchased A/C pipe lathes from two companies: Pilot and Reed. These companies became one, Pilot-Reed. Mr. Perrell does not believe, however, that field lathes actually used during Capco's operation are still in existence. A field lathe made a bevel so that a gasket could be placed on the pipe. A/C pipe was beveled in three steps progressing away from the opening. Bevels were always put on the pipe at the plant. Mr. Perrell stated that lathes were used to cut A/C pipe by putting a bevel on it.

Three Types of Capco Customers

Capco had three types of customers: (1) direct end users, such as municipalities, (2) pipeline contractors, and (3) distributors. According to Mr. Perrell, Capco did not utilize distributors in 1965. Capco sold to contractors and sometimes to cities and municipalities.

Many of Capco's direct sales were made to rural water projects. In 1970, PVC entered the pipe market. Initially, PVC was utilized for the smaller jobs. Between 1967 and 1970, Capco sold PVC pipe made by other manufacturers. Once the Van Buren plant opened in 1970, and Capco began making its own PVC, distribution networks were expanded in the Western states (the Van Buren market area).

According to Mr. Perrell, Capco distributors were typically water works supply houses (not plumbing supply houses, because Capco did not manufacture the lighter weight A/C pipe used in or near buildings). According to Mr. Perrell, Capco first used distributors in Texas. Distributors often kept between two and four truckloads of pipe in stock. "Includes" were pipe lengths and couplings other than the standard 13' length. Capco supplied a standard number of "includes" with every truckload of pipe. Distributors often purchased A/C pipe from Capco at a net price, and then added their commission on top of the net price for resale. The distributor then either sold Capco products out of its own stock or brokered the pipe by alerting Capco to the sale, taking the commission and having Capco ship directly to the customer.

Distributors generally sold within a 100 mile radius of their "store". Capco did not define geographic boundaries within which distributors were permitted to sell Capco products. On occasion, an informal restriction could prohibit distributors from entering other market areas. For example, these restrictions could prevent distributors in southern California from bidding on jobs in northern California or in another state.

Most distributors would have stored very little Capco A/C pipe. Most of the pipe would have been shipped directly to the worksite by Capco. Mr. Perrell stated that a customer could buy through a distributor or directly from Capco. Capco supported the use of distributors and so did not have many direct sales. Some of what is referred to as direct sales were actually sales through a distributor. A distributor often did not want to process the paperwork and Capco would record the sale as a direct sale and pay a finder's fee to the distributor.

Ultimate Destination, Transportation and Storage Yards

From 1965 to 1987, we have a virtually complete set of the original Capco customer cards. The customer cards, however, do not necessarily reveal the address where the A/C pipe was shipped or physically put in the ground. Capco normally delivered orders of its A/C pipe larger than a truckload directly to the pipe-laying site, so that the purchaser or distributor did not have to unload, reload, and then unload the A/C pipe again. (Many times, Capco's distributors acted as order takers, and did not take physical delivery of the A/C pipe). However, if A/C pipe was sold to a distributor and the "shipped to" on the invoice indicates it was shipped to the distributor itself (*e.g.*, as "stock pipe" for resale), it is difficult if not impossible to determine where pipe was physically put in the ground.

For post-1986 sales of A/C pipe, we have a complete database of every sale including, for most sales, the "ship to" address.

Mr. Perrell explained that Capco generally delivered A/C pipe to the worksite by truck, and it was unloaded with either a forklift or by a "ropes and skid" method. Capco A/C pipe did

not have packaging in the normal sense, but was shipped on pallets using strapping and blocks for unitized truck or rail shipments (or wooden end crating for the relatively few shipments exported by vessel). Mr. Perrell noted that Capco never used barges to ship pipe via U.S. waterways. Capco initially shipped pipe to the west coast via rail car; it was found profitable to ship pipe from the Ragland plant by rail. However, due to a 20% breakage rate by rail, and a shorter travel distance from Van Buren, Capco began using trucking companies to haul pipe from the Van Buren plant after it was in operation.

Capco operated storage yards in California, Texas and Arizona. Capco first opened storage yards in California due to the distance from Capco's plants in Alabama and Arkansas. Capco needed to decrease its delivery time of 2-3 days to the west coast in order to compete with Johns-Manville and CertainTeed, which operated plants on the west coast and were able to ship pipe to California sites within a day. Capco operated storage yards in California from 1971 through 1994. According to Mr. Perrell, storage yards provided outdoor warehouse space for Capco's A/C pipe.

The Houston, Texas yard was started during a strike at the Van Buren, Arkansas plant. Texas was an enormous A/C pipe market for Capco. Mr. Perrell estimated that there was a \$10-\$12 million annual A/C pipe market in the Houston area in the mid-70's, and that Capco had \$2.5-\$3 million of that market.

Later, Capco opened a storage yard in Phoenix, Arizona. This yard was again opened due to the length of time necessary to ship pipe from the plants.

In September 1997, Mr. Perrell stated that all of Capco's California storage yards were managed by trucking companies, except the Fruitridge, California yard. Fruitridge was run by a distributor. The managers needed to be familiar with A/C pipe in order to operate a yard. The yards were not run by Capco sales representatives.

Mr. Perrell stated that A/C pipe orders were placed through Capco's Birmingham sales office. Capco would then forward a form to the storage yard authorizing the release of pipe to the customers and indicate the destination of the pipe.

Occasionally, a small order would be placed directly with the storage yard. The manager would forward the request to Capco and the request would then be processed in the usual fashion. Records of the orders placed directly with the yard would be maintained by the yard and also forwarded to Capco. With the exception of the Phoenix storage yard, the yards did not sell pipe directly to customers or jobsites. Predominantly, the storage yards shipped directly to the jobsites; however, on occasion, Capco A/C pipe would be shipped from a storage yard to a distributor.

Capco controlled the monthly inventory shipped to the yards and maintained a minimum and maximum amount of pipe in storage. The yards maintained a variety of different sizes of pipes, although the quantity of larger pipe was less than that of the smaller and mid-sized pipe.

Nuclear Plants

All nuclear power plants used Johns-Manville A/C pipe exclusively. Capco A/C pipe was never used in a nuclear power plant.

Computerized Database and Customer Cards

Through the ASARCO Asbestos Trust's efforts (described above), we have obtained a virtually complete set of the original Capco customer cards from 1965 to 1987. The Capco customer cards are handwritten and show only the customer's billing address, date(s) of sales, dollar amount of sales and payments, plus a "reference number" for each sale. The information on the customer cards does not always show where the Capco A/C pipe went into the ground. For example, some customers had a billing address in one state, but a "ship to" address in another state.

In January 1982, Capco began to record its sales not only on the paper customer cards, but also as computerized sales records. For approximately 5 years, Capco maintained its sales records concurrently on the paper customer cards and in an electronic database. In 1987, Capco ceased making entries on the customer cards. Porzio has copies of the 1982-onward computerized sales records for A/C pipes sales, and that database allows us to sort sales information either by customer name or by shipment destination. There are, however, problems with the first 5 years of electronic records in the database. Capco assigned each customer a "customer number" for entry into the database, but after an invoice was paid, Capco purged the customer's name and address from the database. In addition, after purging the customer name and address from the system, Capco often re-used customer numbers for different customers.

Capco subsequently eradicated these practices, and the sales database for 1987-1994 is reliable and complete.

Capco's PVC Plants in Evansville, Indiana, and Litchfield, Illinois

Capco also owned two plants—in Evansville, Indiana, and Litchfield, Illinois—that only manufactured PVC pipe. A/C pipe was never manufactured at Evansville or Litchfield.

Capco also had a lengthy contractual relationship with Robintech, which again related solely to PVC pipe.

Capco's Sales and Marketing Departments

Capco held sales meetings throughout the years for the benefit of Capco's in-house sales people only, not for distributors. Mr. Perrell started his career with Capco in 1965. At that time, Capco had 5 salesmen ("Territory Managers") compared with the 200 salesmen at Johns-Manville. By the time Capco ceased production in 1993, it had 18 salesmen across the country. Capco had fewer salesmen than its competitors; but used a large number of water works supply houses as distributors. Capco did not own its distributors, unlike CertainTeed, which owned its distributors. Johns-Manville had a large number of salesmen and very few distributors.

When the Ragland plant opened in 1965, the sales office was located in an office in the Woodward Iron building in Birmingham. In 1966, Capco moved its sales office into its own facility in Birmingham. All sales orders went through Birmingham until 1973. According to Mr. Perrell, no orders were placed directly through the Ragland or Van Buren plants. Mr. Perrell also noted that a 3 person sales office was opened in the Van Buren, Arkansas plant. By 1973, the sales office was moved to Ft. Smith, Arkansas for four or five years (from 1973-1978), and then the sales office moved back to Birmingham. The Ft. Smith sales office worked in coordination with the Birmingham office and eventually merged with the Birmingham office. During the time that the Ft. Smith sales office was operational, Birmingham handled sales for the Ragland market area (east of the Mississippi River) and Ft. Smith handled sales for the Van Buren market area (west of the Mississippi River).

Capco began with 5 territory managers in 1965. Eventually, as the regions expanded, these 5 territory managers hired assistants to cover the areas. In 1981, Capco began a transition from in-house salesmen to independent sales representatives. The representatives carried competitor's pipe only when it was not in direct competition with Capco products.

Mr. Perrell's territories in 1965 included Mississippi, western Tennessee, western Kentucky and Arkansas. He became an area sales manager sometime later and assigned Richard Pate to cover the territories of Oklahoma and Tulsa. In 1965, I.L. Taylor was the General Sales Manager in Birmingham.

I.L. Taylor began working for Capco in April 1965 as a General Sales Manager. In 1966, he was promoted to Vice President of Sales and later became Vice President of Marketing and Sales. In 1980, his title changed to the Vice President of Marketing. From 1966 through 1980, Mr. Taylor had total responsibility for the sale of A/C and PVC pipe. During this time, Mr. Perrell assisted Mr. Taylor in his responsibilities. In 1980, Capco promoted Mr. Perrell to Vice President of Sales. Mr. Taylor became involved in marketing studies and was no longer responsible for the day-to-day activities of the company.

Prior to 1975, I.L. Taylor hired territory managers for the Ragland market and W.R. Perrell hired territory managers for the Van Buren market area. Mr. Perrell defined the Ragland Market area as the region east of the Mississippi River, while the Van Buren market area included the regions west of the Mississippi River.

Carl Woodworth served as General Sales Manager from 1979 until 1982.