Global Jesuit Case Series
May 2018, Vol. 36, No. 3, p. 44-52
Special Issue of the *Journal of Case Studies*
ISSN 2162-3171
www.sfcrjcs.org

"It is Just Not Enough": The Tragedy of a Manufacturing Defect

John Monteleone, Le Moyne College
Tracy Couto, Le Moyne College

Introduction

Joe Savage, Vice President of Finance for Victaulic Company ("Victaulic"), sat and reflected on the tragedy that had just taken place, and how best to move forward. A product manufactured for Victaulic failed, and as a result, a worker lost his life. After negotiations with the insurance company led to an amount that Victaulic perceived as too low of a settlement for the worker's family, Savage and the management of Victaulic wondered whether there was more they could do to help the worker's widow and her two small children. In the opinion of the company, the insurance money was not a personal 'I'm sorry.' This case shows how a manufacturing defect can entangle a company in classic philosophical debates on making the commercially expedient choice versus acting for the sake of others.

Company Background

Victaulic Company began in 1919 in London, England as the Victory Pipe Joint Company under the direction of Mr. Ernest Tribe and Dr. Henry Selby Hele-Shaw. Like many entrepreneurs, Tribe and Hele-Shaw had seen an opportunity to innovate. Prior to 1919, the piping industry relied primarily on welders for joining pipe. It was an expensive and time-consuming method. Additionally, there were problems about how reliably to join pipes to one another in an industrial setting, where the contents of the pipe often vary in temperature and chemical composition. Tribe and Hele-Shaw's innovative design was a grooved, bolted mechanical coupling that used a gasket seal for water and air tightness. This concept, called the "victory joint," proved to be an efficient, economical way to assemble pipes more quickly, more safely, and over longer distances than had ever been possible before.

In 1922, the Victory Pipe Joint Company combined the words "Victory" and "Hydraulics" to become Victaulic Company, and in 1925 the company known as Victaulic Company of America was founded in New York City. Their pipe joining solutions were used extensively during World War II due to high demand for the quick construction of long water and fuel lines to supply the Allied forces. Since that time, the company has developed numerous military and industrial applications of their original victory joint design. It has also designed and manufactured complementary pipe installation products such as adapters, diverters, end caps, and

May 2018, Vol. 36, No. 3, p. 44-52
ISSN 2162-3171

diffusers, among others. The company continued to expand nationally throughout the next several decades after the war and in the 1960s began efforts to expand into global markets. As a result, Victaulic is now the world's leading producer of mechanical pipe-joining solutions.

Currently located in Easton, Pennsylvania, Victaulic has manufacturing and distribution facilities worldwide and employs more than 4,000 people (Victaulic, 2010). Its stated focus is "making piping installations faster, easier, safer and more cost effective." Victaulic has formally adopted its own corporate code of ethics, which includes the following guiding principles (Victaulic, n.d.):

- Obey the laws and regulations that govern business activities.
- Demonstrate ethical conduct in everything we do.
- Treat employees fairly and use employment practices based on equal opportunity.
- Provide safe and healthy working conditions and an atmosphere of open communication.
- Deal fairly with suppliers, vendors and customers by treating them with respect and dignity.
- Safeguard Victaulic assets – both physical and intangible – and make sure they are used to further the interests of Victaulic.

Since the company is nearly one hundred years old, these guiding principles have been tested numerous times before. More recently, at a time of increased costs, it became necessary to conduct a series of layoffs at the manufacturing plant in Easton, Pennsylvania. Victaulic's executives recognized the catastrophic effects that layoffs have on not only the individual workers, but also their families and ultimately the community. So they decided to extend the healthcare benefits of those affected up to five years after the termination date in order to minimize the burden of losing a job.

Background on Product 731-G "Suction Diffuser"

Please see figure A in the appendix for a detailed look at product 731- G, the suction diffuser described in the narrative below.

According to one authority,

> *A suction diffuser is a special pipe fitting, sometimes in the configuration of a tee or sharp elbow, which is installed directly on the pump's suction connection which contains, depending on the make, various configurations of flow straightening elements* (Whitesides, 2012).

May 2018, Vol. 36, No. 3, p. 44-52
ISSN 2162-3171

An example of a suction diffuser is shown here. This is meant as an example, as product 731-G has been discontinued.

The Circumstances of the Accident

In 2007, Victaulic had contracted with SUI Enterprise Co. Ltd., a company located in Incheon, South Korea, to manufacture 731-G suction diffusers. According to the specifications for their design, 731-G units were supposed to be constructed out of ductile iron (*Company A vs. SUI*, 2014). Ductile iron, which is also known as "nodular iron" or "spheroidal graphite iron," is produced by the addition of a specified amount of magnesium to the molten iron (Atlas Foundry Company., n.d.). The result is that the graphite in the the cooled iron takes the form of spheroids rather than flakes (Atlas Foundry Company. n.d.). Due to this spheroidal structure, products made of ductile iron are less likely to crack, and hence more impact and fatigue resistant, than traditional cast iron ("Ductile iron", n.d.). The reason for this specification was that these 731-G units would be employed in systems that would be under pressure, such as heating and air-conditioning systems. However, despite these design specifications, SUI Enterprise Co. Ltd. had substituted gray iron instead of the required ductile iron in the manufacture of the 731-G units. Gray iron is a common, less expensive variety of cast iron that can be manufactured at a relatively low pouring temperature and is easily machined (Krause, 1969). However, it is relatively brittle and has lower tensile strength than the more expensive ductile iron.

Noone at Victaulic had been notified of this substitution of materials by SUI Enterprise. Ordinarily, any change to materials used by a supplier is done through a procedure that requires supplying Mill Test Reports (MTR) for the altered units. An MTR is a document that states the chemical and physical composition of a product, and is used to determine compliance of the products with international quality standards for metals ("Mill test report," n.d.). However, in this case, no Mill Test Reports had been supplied to certify the composition of the 731-G Suction Diffusers.

Unfortunately, the substitution had catastrophic results. In October 2007, SUI Enterprise Ltd. shipped an order of 731-G units to be used in construction of the boilers in the mechanical room of the Gaylord Hotel in National Harbor Maryland (*Company A vs. SUI*, 2014). These were properly installed, but at 6:30 AM on November 21, 2007 the end cap on one of the 731-G suction diffusers failed. A worker named Marcelo Alvarez was installing pipe insulation, and was in the process of going through a series of tests to initialize the system while it was charged and pressurized. These tests were standard procedure. During the tests, however, the end cap on

May 2018, Vol. 36, No. 3, p. 44-52
ISSN 2162-3171

one of the 731-G units cracked. Standing about 10 feet away from the defective unit, Alvarez was struck by a powerful, pressurized stream of 185 degree water which subsequently trapped him under the boiler (OSHA, 2007). The hot water caused serious burns over approximately 97% of Alvarez's body. He was taken to a hospital to be treated for his injuries, and after 6 days he died (*Company A vs. SUI*, 2014; OSHA, 2007).

A subsequent investigation conducted by Victaulic established that the 731-G unit that had failed was made of gray iron instead of the ductile iron specified by the design. The company concluded that gray iron is likely what caused the suction diffuser's end cap to fail, and promptly issued a recall on all of the 731-G units manufactured with gray iron by SUI Enterprise Co Ltd (*Company A vs. SUI*, 2014).

Fighting for a Fair Insurance Claim

When he died, Marcelo Alvarez was in his mid-30s and left behind a wife, Jeanne Silva, as well as a three year-old child named Paula and a two year-old child named Gabriel (*Silva v. Victaulic*, 2009). He and his family had immigrated from El Salvador. The family, who had previously relied upon Alvarez's approximately $57,990 annual income, suddenly found themselves at a loss about how to provide for their needs and their future (*Silva v. Victaulic*, 2009).

Victaulic had a commercial general liability insurance ("CGL") policy with Company A. A CGL policy covers "liability claims for bodily injury … and property damage … arising out of premises, operations, products, and completed operations" (IMRI, n.d.). In the case of a manufacturing defect, such policies standardly require the insurance company to pay for defense against lawsuits from those affected by an occurrence involving the product, to cover medical bills of the person affected, to pay for loss of services due to the injury, and to pay for court-awarded compensation for deaths (BIN, n.d.). Covered claims are usually the result of court decisions, and any attempt to settle must be approved by the insurance company first (Weiner & Saka, n.d.). CGL policies do not require the insurance company to settle out of court. Additional excess coverage beyond the CGL policy can be purchased by the company if desired.

Despite having made relatively few claims in the past, Victaulic experienced significant challenges in getting a covered claim paid for an earlier incident in West Virginia in 2005. Savage describes this earlier case as a "dogfight of a claim". In that case, couplings manufactured by Victaulic which had joined lengths of PVC pipe in a mine operated by Massey Energy had failed (*Massey Coal v. Victaulic*, 2008). The bolts fastening the couplings had rotted, and as a result water poured out of the pipes. Although there were only minor injuries, operations in the mine had to be suspended for a period of time (*Massey Coal v. Victaulic*, 2008). However, in the subsequent negotiations, Company A had steadfastly rejected any settlement and sought to minimize the claim by going to court to aggressively defend any lawsuit.

Joe Savage, who was then the Vice President of Finance at Victaulic, was tasked with making the necessary arrangements with Company A to get the insurance claim paid on behalf of the surviving members of the Alvarez family. He clearly saw the task as a crucible of leadership. Savage approached the task with deep sympathy for Alvarez and his family. He wanted the

May 2018, Vol. 36, No. 3, p. 44-52
ISSN 2162-3171

ultimate resolution to be fair, which in his mind was appropriate and consistent with Victaulic's policies and culture.

However, when Savage began to challenge Company A's lost income estimate for Alvarez, it became clear that Company A was again seeking to minimize the claim amount. Savage says "I began to get a sense that the insurance company wanted to whittle down the amount of money that we thought would be appropriate to give Mrs. Alvarez for this terrible thing that had happened to her family, and her two children." The difficulty of the previous fights over paying insurance claims suggested the prospect of a similar fight, especially one that involved legal liability for a death, especially undesirable. Savage and the management team were not seeking to avoid accountability, as he emphatically stated "we were clearly at fault."

To rectify the situation, Savage undertook to ensure that Jeanne Silva and her children would be given the maximum compensation allowable under Victaulic's policy. He brought up Company A's reticence with the CEO at Victaulic, John Malloy. After discussion and noting that a settlement hearing might be the usual, but timelier, manner to resolve any differences with Company A, Savage and Malloy together arranged a meeting in Maryland with the insurance company, the insurance company's lawyers, Alvarez's wife Jeanne Silva, and lawyers who represented the family. Prior to the meeting Savage called the insurance company and made the following statement:

> *Look, we are not going to spend a lot of time negotiating. Okay. I recognize that it is your money, not my money, but we paid you a lot of money over the years. You have made a lot of money on us. You are going to going to maximize the amount money we are going to give this family.*

At the meeting and in the presence of lawyers on both sides, Savage explicitly and publicly admitted the company's fault to Jeanne Silva and the two children. According to him, "[I] look[ed] at Mrs. Alvarez in the face and [said] 'I'm sorry … [W]e made a mistake… We had a problem with our product and we are responsible.'"

After a long day of back and forth negotiations with Silva and her attorney, all parties agreed to a $3,000,000 settlement to be awarded to Alvarez's family (*Company A vs. SUI*, 2014). Jeanne Silva had initially sued Victaulic for damages in the amount of $10,000,000 (*Silva v. Victaulic*, 2009). Of this settlement, $1,042,500 represented the statutory cap for non-economic damages in the state of Maryland, awarded for the pain and suffering Alvarez and his family endured because of the injury (*Company A vs. SUI*, 2014). The remaining portion of the settlement compensated the family for Alvarez's lost future economic earnings and benefits (*Company A vs. SUI*, 2014). $500,000 of the settlement was paid by Victaulic as a deductible, and the remaining $2.5 million was paid by Company A (*Company A vs. SUI*, 2014). Company A subsequently sued SUI Enterprise, which manufactured the faulty diffusers, to recover the funds on what is known as a subrogation claim.

May 2018, Vol. 36, No. 3, p. 44-52
ISSN 2162-3171

The Decision Point

Several months later, at the board meeting, Victaulic's leadership team reflected on this crucible that they had endured together. While satisfied that they had exhausted the existing legal and insurance channels, Savage says that there was still a sense that there was more they should do for Mrs. Alvarez and her children. How would doing more for the family create an ethical dilemma for Victaulic? Are there rational justifications for doing more, based on preserving an ethical corporate culture or ensuring reparative justice, that would outweigh the cost to the company? Would pursuing further action demonstrate an appropriate balance of tactical leadership and emotional intelligence?

May 2018, Vol. 36, No. 3, p. 44-52
ISSN 2162-3171

Appendix Fig. A. Design for 731- G Suction Diffuser

VICTAULIC® IS AN ISO 9001 CERTIFIED COMPANY

Series 731-G Suction Diffuser

PRODUCT DESCRIPTION

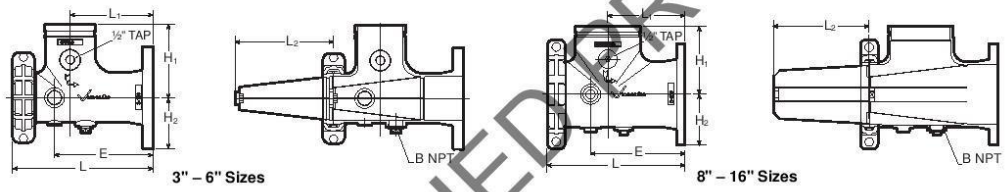
Victaulic Series 731-G Suction Diffuser provides optimum flow conditions at the inlet side of the pump. Each suction diffuser is provided with a removable strainer and a fine mesh sleeve which acts as a start-up strainer. Pipe support bosses are provided to aid in proper alignment. For convenience, bosses (tapped 1/2"/15 mm NPT) on either side are provided for pressure measurement. A plug is also provided to allow for easy draining of the system. Victaulic Series 731-G is rated at 300 psi (2065 kPa) working pressure.

⚠ WARNING

Always depressurize and drain system before disassembly. Failure to do so could result in serious personal injury, property damage, joint leakage or joint separation.

ANSI Dimensions – Page 1
DIN Dimensions – Page 3
JIS Dimensions – Page 5

ANSI DIMENSIONS



Series 731-G with ANSI Class 150 Flange

System Side Grvd.	X	Pump Side Flgd. ANSI CLASS 150	Dimensions Inches/millimeters L	L_1	L_2*	H_1	H_2	B NPT	E	Aprx. Wgt. Each Lbs./kg.
Nominal Inches/mm										
3	X	2	10.63	6.30	7.05	5.51	3.00	1	7.48	21.7
80	X	50	270	160	179	140	76,2	25	190	9,8
	X	2½	10.63	6.30	7.05	5.51	3.50	1	7.48	21.7
	X	65	270	160	179	140	89	25	190	9,8
	X	3	10.63	6.30	7.05	5.51	3.74	1	7.48	21.7
	X	80	270	160	179	140	95,1	25	190	9,8
4	X	2†	–	–	–	–	–	–	–	–
100	X	65	–	–	–	–	–	–	–	–
	X	2½	12.48	7.36	8.70	6.50	3.50	1	8.74	35.4
	X	65	317	187	221	165	89,0	25	222	16,1
	X	3	12.48	7.36	8.70	6.50	3.74	1	8.74	35.4
	X	80	317	187	221	165	95,1	25	222	16,1
	X	4	12.48	7.36	8.70	6.50	4.50	1	8.74	35.4
	X	100	317	187	221	165	114,5	25	222	16,1
5	X	3	14.29	8.39	9.88	7.52	4.51	1¼	9.84	51.9
125	X	80	363	213	251	191	114,5	32	250	23,5
	X	4	14.29	8.39	9.88	7.52	4.51	1¼	9.84	51.9
	X	100	363	213	251	191	114,5	32	250	23,5
	X	5	14.29	8.39	9.88	7.52	4.92	1¼	9.84	51.9
	X	125	363	213	251	191	125	32	250	23,5
6	X	3	15.51	9.02	10.75	7.99	4.51	1¼	10.98	68.2
150	X	80	394	229	273	203	114,5	32	279	30,9
	X	4	15.51	9.02	10.75	7.99	4.51	1¼	10.98	68.2
	X	100	394	229	273	203	114,5	32	279	30,9

*See minimum clearance requirement table on page 8.

† Series 731 two-piece body. See page 7.

3234 REV B

Victaulic Company of America • Phone: 1-800-PICK-VIC (1-800-742-5842) • Fax: 610-250-8817 • e-mail:pickvic@victaulic.com
Victaulic Company of Canada • Phone: 905-884-7444 • Fax: 905-884-9774 • e-mail: viccanada@victaulic.com
Victaulic Europe • Phone:32-9-381-1500 • Fax: 32-9-380-4438 • e-mail: viceuro@victaulic.be
Victaulic America Latina • Phone: 610-559-3300 • Fax: 610-559-3608 • e-mail: vical@victaulic.com
Victaulic Asia Pacific • Phone: 65-6235-3035 • Fax: 65-6235-0535 • e-mail: vicap@victaulic.com

May 2018, Vol. 36, No. 3, p. 44-52
ISSN 2162-3171

References

Company A, et. al., v. SUI Enterprise Co., Ltd., Civil No. PWG 12-817 (D. Maryland, 2014). Retrieved from http://www.dockets.justia.com.

Atlas Foundry Company. n.d. Understanding cast irons -- Ductile iron. Retrieved from: http://www.atlasfdry.com/ductile-iron.htm.

Business Insurance Now. n.d. Commercial general liability insurance. Retrieved from http://www.businessinsurancenow.com/general-liability/.

Ductile iron. n.d., In Wikipedia. Retrieved Apr. 2, 2017 from: https://en.wikipedia.org/wiki/Ductile_iron.

International Organization for Standardization. (2013). Exclusive interview with John F. Malloy, chairman of Victaulic. Retrieved from: https://www.iso.org/news/2013/01/Ref1689.html.

International Risk Management Institute, Inc. n.d. Commercial general liability (CGL) policy. Retrieved from: https://www.irmi.com/online/insurance-glossary/terms/c/commercial-general-liability-cgl-policy.aspx.

Krause, D. E. (1969). Gray iron-A unique engineering Material. Gray, Ductile, and Malleable Iron Castings-Current Capabilities, ASTM STP 455, *American Society for Testing and Materials*, pp. 3-28. Retrieved from: http://ironcasting.org/gray-iron/.

Massey Coal Services, et. al., v. Victaulic Co., et. al, Case No. 2:06-cv-00535 (D. West Virginia, 2008). Retrieved from: http://www.dockets.justia.com.

Mill test report. n.d., In Wikipedia. Retrieved from: https://en.wikipedia.org/wiki/Mill_Test_Report.

Occupational Safety and Health Administration. (2007). Inspection detail, Incident #311662373. Retrieved from: https://www.osha.gov/pls/imis/establishment.inspection_detail?id=311662373.

Silva v. Victaulic Co., Civil Action No. CAL08-34864 (D. Maryland, 2009). Retrieved via a public records request.

Victaulic Company. (2010). *Victaulic to provide piping systems for four landmark buildings* [Press release]. Retrieved from: http://news.thomasnet.com/companystory/victaulic-to-provide-piping-systems-for-four-landmark-buildings-581300.

Victaulic Company. n.d., Company: Code of conduct and guiding principles. Retrieved from https://www.victaulic.com/company/#tab-panel-2.

May 2018, Vol. 36, No. 3, p. 44-52
ISSN 2162-3171

Weiner, A. & Saka, J. n.d., The basics of commercial general liability policies. Retrieved from: American Bar Association http://www.iii.org/article/commercial-general-liability-insurance.

Whitesides, R. W. (2012). Practical considerations in pump suction arrangements. PDHonline Course M134. PDH center. Retrieved from: http://www.pdhonline.com/courses/m134/m134content.pdf.