

TO: Mayor and City Council

FROM: Dan Howard, Public Works Director

SUBJECT: Wastewater Treatment Plant Raw Wastewater Pit Pump

MEETING DATE: Tuesday, September 7, 2021

BACKGROUND

The City of Cannon Falls Wastewater Treatment Plant relies on 4 raw wastewater pit pumps to pump the raw wastewater from the underground structure into building 10 for preliminary treatment. On August 13, Electric Pump inspected each of the pumps to verify that staff was not missing something, all wear rings were in good shape and had the correct tolerance between the impeller and volute. Electric pump did determine pump 3 which is not being used at this time shows beginning signs of bearing failure. The cost to rebuild, rewind and new power cable for the motor is approximately \$9,569.50. If pump is repaired this would not help with the rags that clog these pumps. The pumps have been in place since the construction of the WWTP in 2001, and have been repaired as needed. With the introduction of flushable wipes, the impeller technology of pumps has changed to force the wipe through the pump to be retrieved in the bar screen of the preliminary treatment. Our present pumps do not have the new technology and are prone to clogging and shutdown if a flushable wipe is tangled in the pump. This requires pulling and dismantling the pump to remove the flushable wipe. Staff has been pulling pumps on a daily basis to remove rags. If not pulled daily, staff is having to pull and restart pumps on overtime at all hours of the day. This contributed to 4-5 call-outs a week before staff started to pull pumps daily. The pulling of pumps has taken an hour or more of staff time daily. This has helped but we are still seeing 1-2 overtime calls a week. Staff has located one potential source of the wipes, but a lot of residents are using this type of wipe and because they say flushable they go down the toilet. (Please read attached article from the August 2021 Treatment Plant Operator magazine) Electric Pump proposes replacement of pump 3 with a new Flygt Pump capable of handling the flushable wipe. The cost of replacement is \$19,733.

REQUESTED COUNCIL ACTION

Motion and approval to accept the estimate as written and move forward with this project as recommended by the Public Works Commission.

QUOTATION



201 4th Ave SW
New Prague, MN 56071 USA

Telephone: (952)758-6600 / FAX (952)758-7778
Toll Free 1-800-536-5394

www.electricpump.com

QUOTE NUMBER: 0183621
QUOTE DATE: 8/27/2021
EXPIRE DATE: 9/27/2021

SALESPERSON: STEVEN FORSYTHE
CUSTOMER NO: 0011100
QUOTED BY: MKH
REPAIR EST CP3140

QUOTED TO:
CITY OF CANNON FALLS
918 RIVER RD
CANNON FALLS, MN 55009

JOB LOCATION:
CITY OF CANNON FALLS
825 CANNON RIVER AVE
CANNON FALLS, MN 55009

CONFIRM TO:
WES ANWAY 507-263-9345

*** QUOTE ORDER - DO NOT PAY ***

CUSTOMER P.O.	SHIP VIA BEST WAY	F.O.B.	TERMS NET 30 DAYS		
ITEM NUMBER	UNIT	ORDERED	SHIPPED	BACK ORDER	PRICE
					AMOUNT
RE: BLIND REPAIR ESTIMATE OF RAW WW PIT PUMP					
FLYGT MODEL 3140.090-6093 # 0210011					
0000006018931	EACH	1.00	0.00	0.00	3,183.00
KIT,REPAIR BASIC+3140.090,180, MECHANICAL SEALS, BEARINGS					
AND O-RINGS					
0000000942108	EACH	45.00	0.00	0.00	36.00
CABLE,SUBCAB AWG 8/3-2-1-GC+28.2MM					
0000000844397	EACH	1.00	0.00	0.00	79.00
GROMMET,CR 29ID 52OD 26					
0000005108807	EACH	1.00	0.00	0.00	2,593.00
ROTOR UNIT					
*REWIND	EACH	1.00	0.00	0.00	792.00
REWIND 15HP STATOR #4268312					
/PSDS	HOUR	8.50	0.00	0.00	135.00
PUMP LABOR,SEWAGE OR SUBMERSIBLE					
/ENVI	EACH	1.00	0.00	0.00	60.00
OIL & ENVIRONMENTAL					
/MISC	EACH	1.00	0.00	0.00	95.00
MISC. SHOP SUPPLIES					

AFTER TEARDOWN AND INSPECTION OF PUMP, IF ANY
ADDITIONAL PARTS, MACHINING OR LABOR IS NEEDED TO
COMPLETE THE REPAIR, WE WILL CONTACT YOU BEFORE
PROCEEDING WITH THE REPAIR.

FREIGHT IS ADDITIONAL

THANK YOU MYRA HOFFMAN
myrah@electricpump.com

QUOTATION



201 4th Ave SW
New Prague, MN 56071 USA

Telephone: (952)758-6600 / FAX (952)758-7778
Toll Free 1-800-536-5394

www.electricpump.com

QUOTE NUMBER: 0183621
QUOTE DATE: 8/27/2021
EXPIRE DATE: 9/27/2021

SALESPERSON: STEVEN FORSYTHE
CUSTOMER NO: 0011100
QUOTED BY: MKH
REPAIR EST CP3140

QUOTED TO:
CITY OF CANNON FALLS
918 RIVER RD
CANNON FALLS, MN 55009

JOB LOCATION:
CITY OF CANNON FALLS
825 CANNON RIVER AVE
CANNON FALLS, MN 55009

CONFIRM TO:
WES ANWAY 507-263-9345

*** QUOTE ORDER - DO NOT PAY ***

CUSTOMER P.O.	SHIP VIA BEST WAY		F.O.B.	TERMS NET 30 DAYS		
ITEM NUMBER	UNIT	ORDERED	SHIPPED	BACK ORDER	PRICE	AMOUNT

All return goods must have written approval from Electric Pump, Inc.
before returning. Credit will not be issued without written approval and
if applicable there will be a Restock Fee.

Net Order:	9,569.50
Less Discount:	0.00
Freight:	0.00
Sales Tax:	0.00
Order Total:	9,569.50

ABOVE PRICING EFFECTIVE FOR 30 DAYS

QUOTATION



201 4th Ave SW
New Prague, MN 56071 USA

Telephone: (952)758-6600 / FAX (952)758-7778
Toll Free 1-800-536-5394

www.electricpump.com

QUOTE NUMBER: 0183543
QUOTE DATE: 8/13/2021
EXPIRE DATE: 9/13/2021

SALESPERSON: STEVEN FORSYTHE
CUSTOMER NO: 0011100
QUOTED BY: MKH
RAW WW PUMP NP3153

QUOTED TO:
CITY OF CANNON FALLS
918 RIVER RD
CANNON FALLS, MN 55009

JOB LOCATION:
CITY OF CANNON FALLS
825 CANNON RIVER AVE
CANNON FALLS, MN 55009

CONFIRM TO:
WES ANWAY 507-291-0717

*** QUOTE ORDER - DO NOT PAY ***

CUSTOMER P.O.	SHIP VIA BEST WAY		F.O.B.	TERMS NET 30 DAYS		
ITEM NUMBER	UNIT	ORDERED	SHIPPED	BACK ORDER	PRICE	AMOUNT
0031530950009	EACH	RE: RAW WW PIT PUMP REPLACEMENT				
		--EXISTING PUMP 3140.090-6093 # 0210011-014				
		--DESIGN CONDITION 760 GPM @ 41' TDH				
		ELECTRIC PUMP PROPOSES:				
		1.00	0.00	0.00	19,733.00	19,733.00
		FLYGT MODEL 3153 6" NP436 HARD IRON N IMPELLER AND				
		INSERT RING, 15/460/3 50' SSCJ FM+FLS FV DVB				
		PUMP QUOTED USES SAME 2" GUIDE RAIL SYSTEM AND WILL				
		SEAT ON THE EXISTING 6" BASE ELBOW				
		FREIGHT AND INSTALLATION ADDITIONAL.				
DELIVERY IS 10-12 WEEKS ARO						
THANK YOU MYRA HOFFMAN						
myrah@electricpump.com						
CC: STEVEN FORSYTHE 612-840-9499						

All return goods must have written approval from Electric Pump, Inc.
before returning. Credit will not be issued without written approval and
if applicable there will be a Restock Fee.

Net Order:	19,733.00
Less Discount:	0.00
Freight:	0.00
Sales Tax:	0.00
Order Total:	19,733.00

ABOVE PRICING EFFECTIVE FOR 30 DAYS

NP 3153 MT 3~ 436

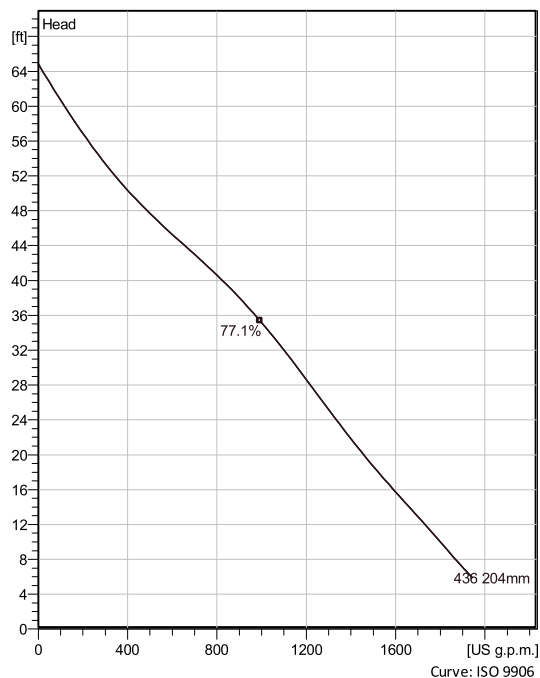
Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.



Technical specification



Curves according to: Water, pure ,39.2 °F,62.42 lb/ft³,1.6891E-5 ft²/s



Configuration

Motor number N3153.095 21-15-4AA-W 15hp	Installation type P - Semi permanent, Wet
Impeller diameter 204 mm	Discharge diameter 1/4 inch

Pump information

Impeller diameter 204 mm
Discharge diameter 1/4 inch
Inlet diameter 150 mm
Maximum operating speed 1755 rpm
Number of blades 2
Max. fluid temperature 40 °C

Materials

Impeller Hard-Iron™

Project
Block

Created by Myra Hoffman
Created on 8/13/2021 Last update 8/13/2021

NP 3153 MT 3~ 436

Technical specification



Motor - General

Motor number N3153.095 21-15-4AA-W 15hp	Phases 3~	Rated speed 1755 rpm	Rated power 15 hp
ATEX approved FM	Number of poles 4	Rated current 19 A	Stator variant 5
Frequency 60 Hz	Rated voltage 460 V	Insulation class H	Type of Duty S1
Version code 095			

Motor - Technical

Power factor - 1/1 Load 0.82	Motor efficiency - 1/1 Load 87.5 %	Total moment of inertia 1.61 lb ft ²	Starts per hour max. 30
Power factor - 3/4 Load 0.77	Motor efficiency - 3/4 Load 88.5 %	Starting current, direct starting 114 A	
Power factor - 1/2 Load 0.65	Motor efficiency - 1/2 Load 88.0 %	Starting current, star-delta 38 A	

Project
Block

Created by Myra Hoffman
Created on 8/13/2021 **Last update** 8/13/2021

NP 3153 MT 3~ 436

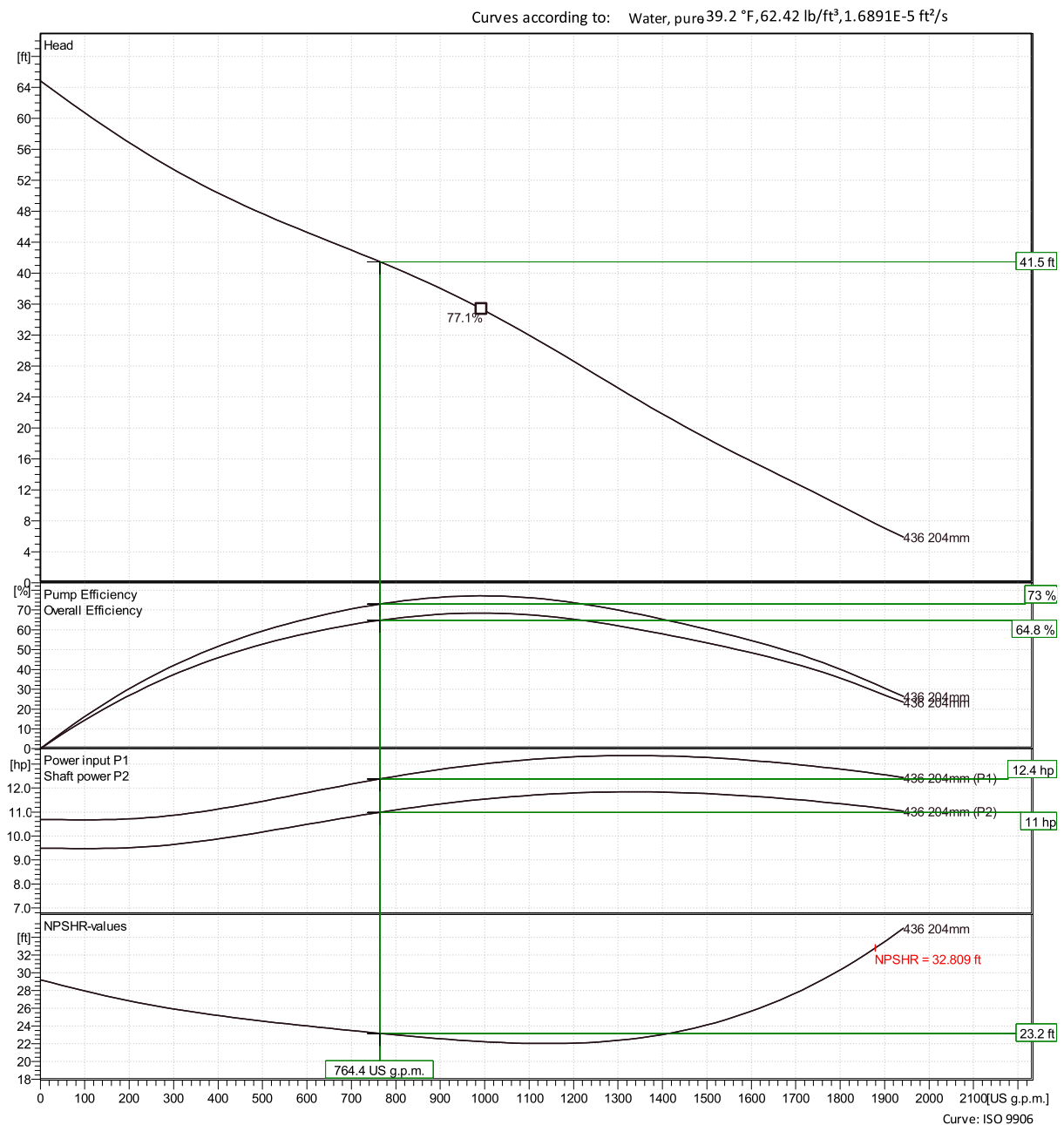
Performance curve



Duty point

Flow
764 US g.p.m.

Head
41.5 ft

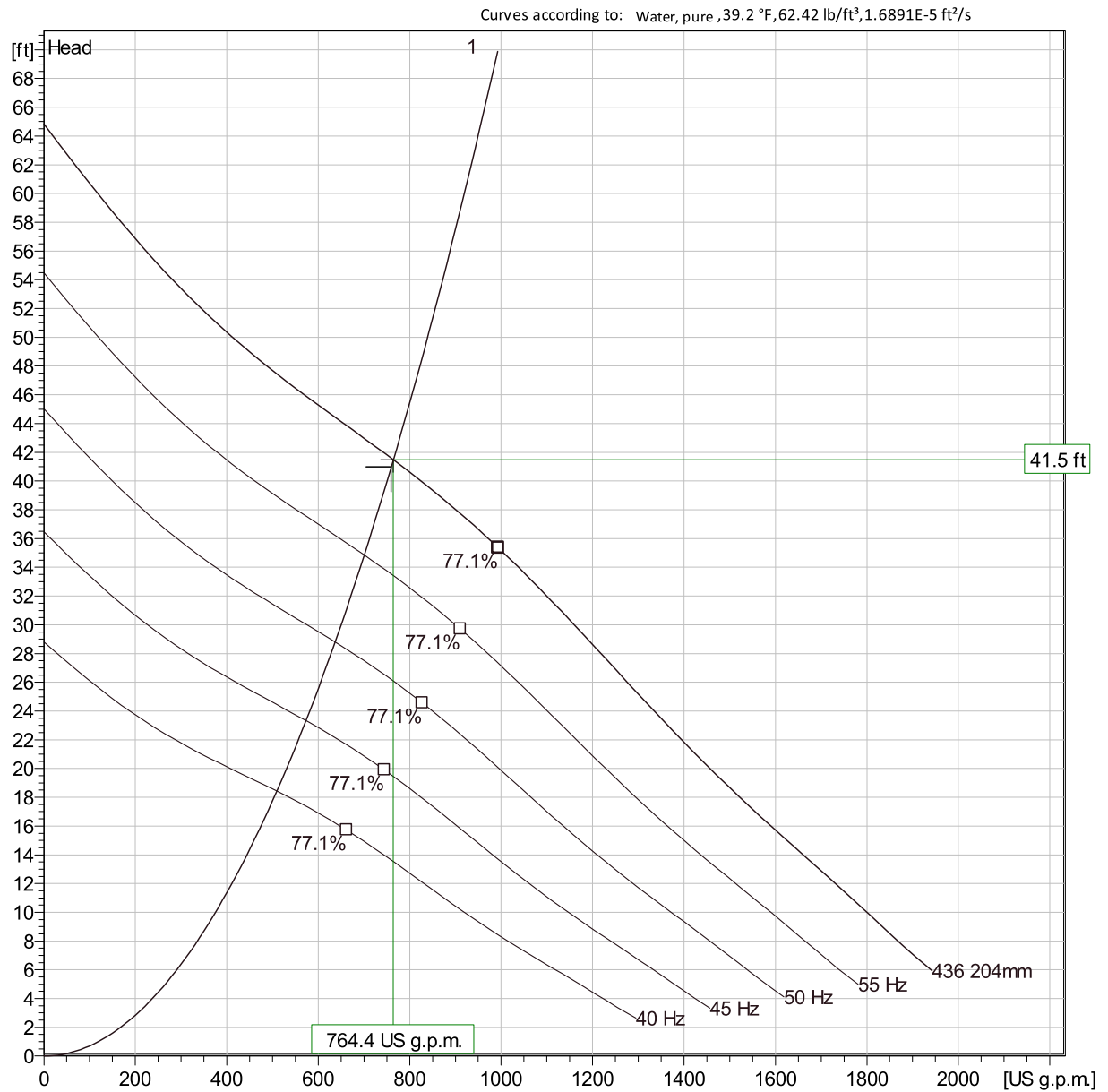


Project
Block

Created by Myra Hoffman
Created on 8/13/2021 Last update 8/13/2021

NP 3153 MT 3~ 436

Duty Analysis



Operating characteristics

Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific Energy	NPSHre
1	764 US g.p.m.	41.5 ft	11 hp	764 US g.p.m.	41.5 ft	11 hp	73 %	201 kWh/US M	23.2 ft

Project
Block

Created by Myra Hoffman
Created on 8/13/2021

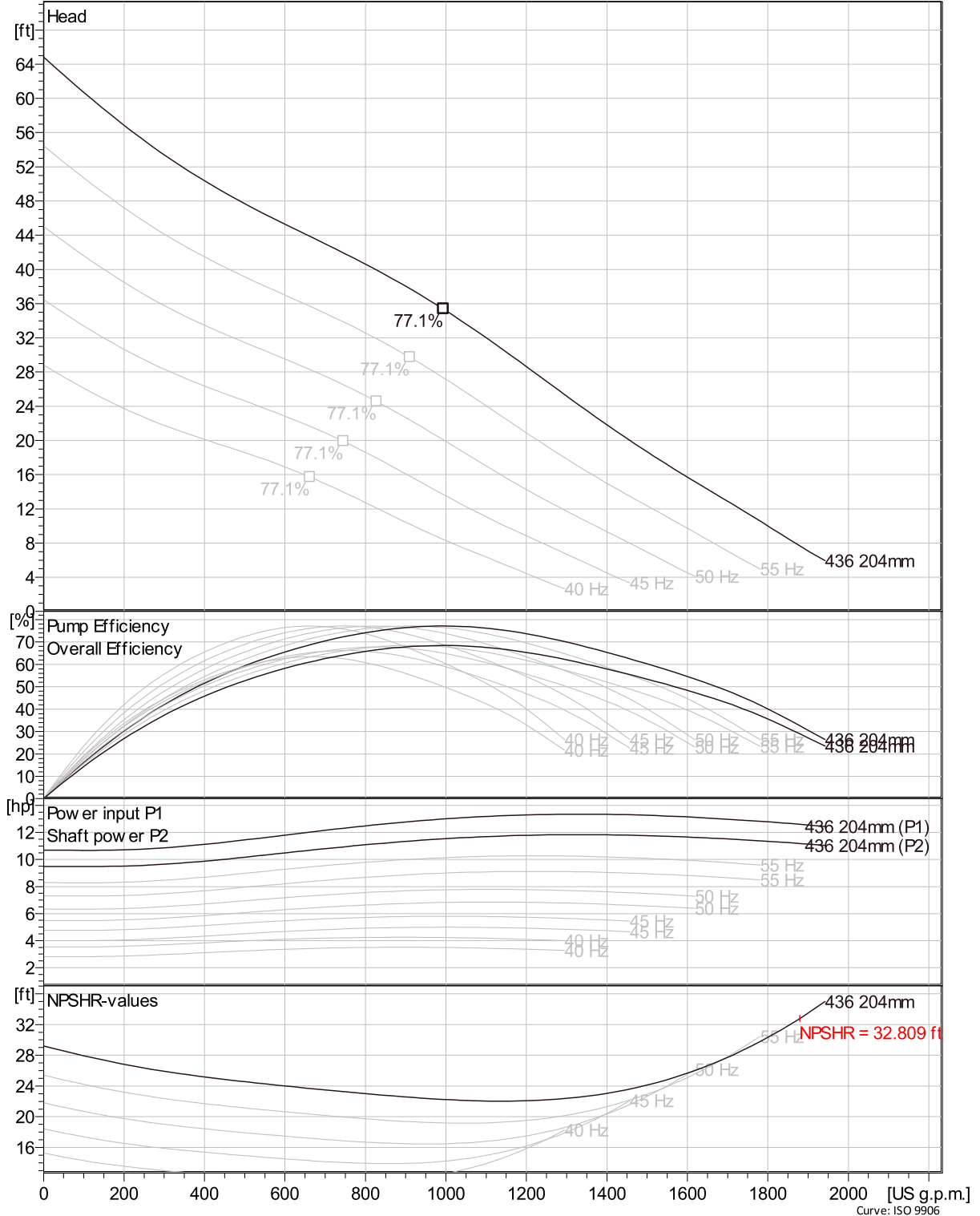
Last update 8/13/2021

NP 3153 MT 3~ 436

VFD Curve



Curves according to: Water, pure, 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s

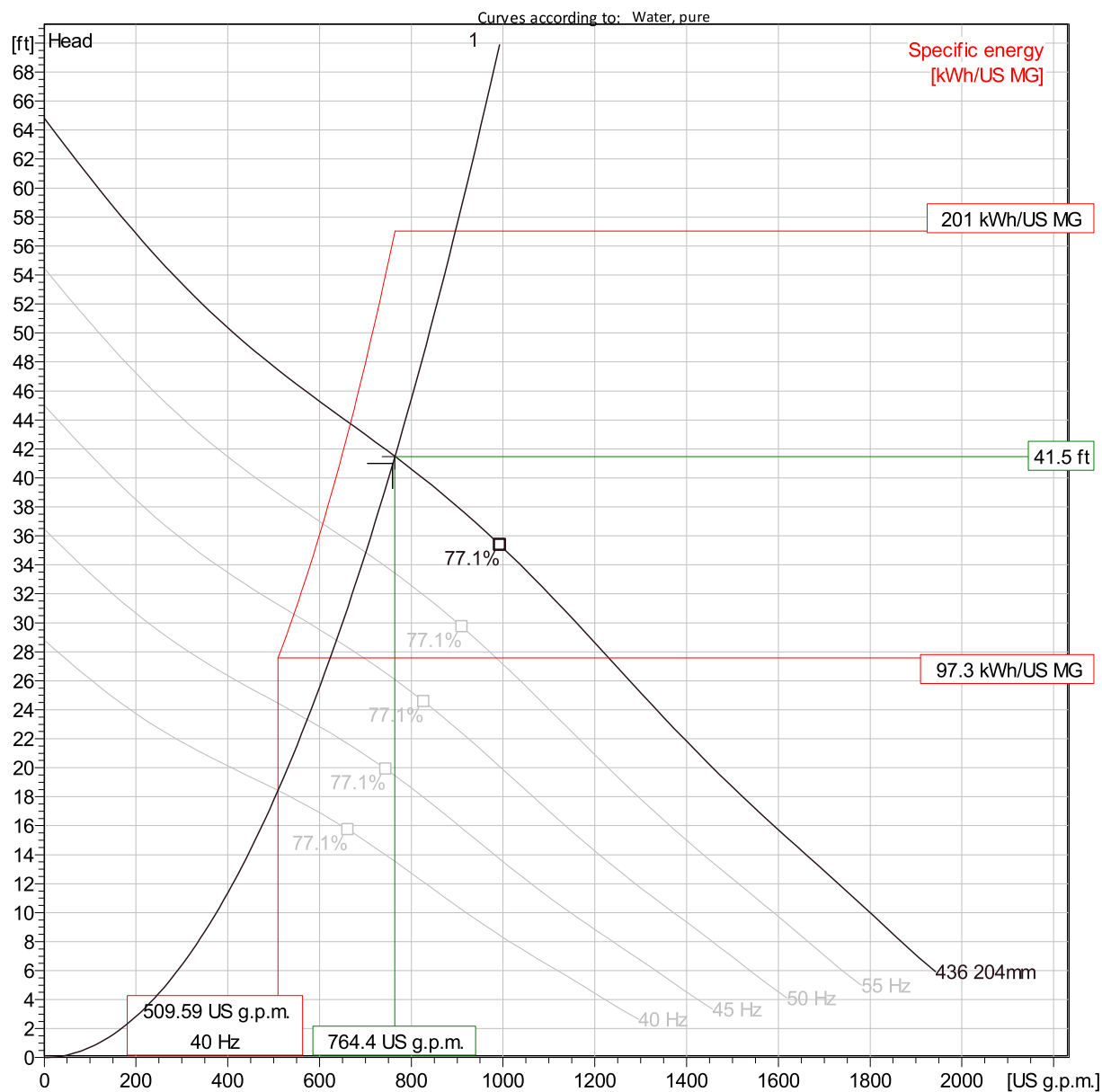


Project
Block

Created by Myra Hoffman
Created on 8/13/2021 Last update 8/13/2021

Curve: ISO 9906

VFD Analysis

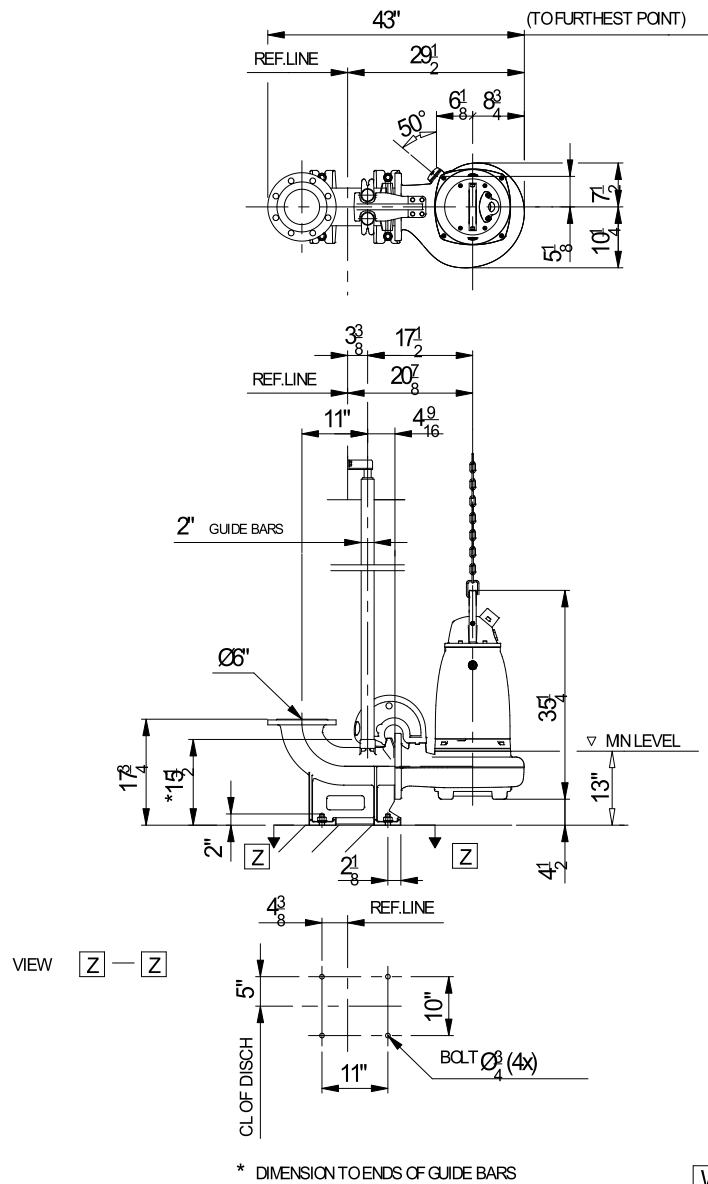


Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr. eff.	Specific Energy	NPSH _{re}
1	60 Hz	764 US g.p.m.	41.5 ft	11 hp	764 US g.p.m.	41.5 ft	11 hp	73 %	201 kWh/US M	23.2 ft
1	55 Hz	701 US g.p.m.	34.8 ft	8.46 hp	701 US g.p.m.	34.8 ft	8.46 hp	73 %	169 kWh/US M	20.2 ft
1	50 Hz	637 US g.p.m.	28.8 ft	6.36 hp	637 US g.p.m.	28.8 ft	6.36 hp	73 %	142 kWh/US M	17.3 ft
1	45 Hz	573 US g.p.m.	23.3 ft	4.64 hp	573 US g.p.m.	23.3 ft	4.64 hp	73 %	118 kWh/US M	14.6 ft
1	40 Hz	510 US g.p.m.	18.4 ft	3.26 hp	510 US g.p.m.	18.4 ft	3.26 hp	73 %	97.3 kWh/US M	12.1 ft

Project	Created by	Myra Hoffman	
Block	Created on	8/13/2021	Last update 8/13/2021

NP 3153 MT 3~ 436

Dimensional drawing



Weight (lbs)	
Pump	Disch
485	175



Denomination
Dimensional drwg
NP,FP 3153 MT
Ø6"

Drawn by	IW	Checked by	CJS	Date	141117
Scale		Reg no	5399		
	6504300				12

Project
Block

Created by Myra Hoffman
Created on 8/13/2021 Last update 8/13/2021

Progress in the War Against Wipes

CHARLESTON WATER HOPES A SETTLEMENT WITH KIMBERLY-CLARK WILL MARK A TURNING POINT ON WIPES FLUSHABILITY AND MORE EFFECTIVE LABELING OF WIPES PRODUCTS

By Ted J. Rulseh

Last April Charleston Water System and Kimberly-Clark reached a settlement in a class-action lawsuit in which the company agreed to make its Cottonelle flushable wipes compliant with wastewater industry flushability standards by May 2022.

The company also agreed to improve the labeling of its wipes containers so that consumers can more readily understand which wipes are and are not safe to flush. The aim is to help set a labeling standard for wipes manufacturers nationally.

For years wipes flushed down toilets have been a source of maintenance headaches for clean-water agencies, clogging lift station pumps, contributing to sewer blockages, driving up the cost of collection system and treatment plant maintenance, and subjecting personnel to extremely unpleasant and hazardous work in clearing wipes from pumps and other equipment.

The lawsuit against wipes manufacturers and retailers accuses the companies of selling wipes that are labeled as flushable but do not break down in the sewer system as rapidly as toilet paper does. The utility's litigation continues against wipes manufacturer Procter & Gamble along with retailers Costco, CVS, Target, Walgreens and Walmart.

Charleston (South Carolina) Water System provides drinking water to some 450,000 people and wastewater services to about 180,000 residents. It operates two wastewater treatment plants, 540 miles of gravity sewer, 115 miles of force main, 12 miles of deep sewer tunnels and 109 wastewater pump stations. Michael Saia, public information administrator with the utility, talked about the Kimberly-Clark settlement and its implications in an interview with *Treatment Plant Operator*.

tpo: How important is this settlement to the clean-water industry?

Saia: It's a huge win, and it may be the biggest win to date. Until now, our industry wasn't just losing the war. We were getting wiped off the battlefield. The damage to our infrastructure and the environment has only increased along with the sales of so-called flushable wipes. Wastewater professionals nationally have been fighting wipes manufacturers and retailers since day one without success. This settlement sets a critical benchmark for flushable wipe dissolvability and product labeling standards.

tpo: What has been the fundamental aim of the lawsuit?

Saia: Our goal has always been to force flushable wipes manufacturers to improve the substrate, so it truly breaks down to an acceptable level and functions similar to toilet paper, and to improve the "Do Not Flush" label on non-flushable items. Right off the bat, we have to applaud Kimberly-Clark, which is the largest wipes manufacturer in North America. We commend

them for their willingness and commitment to improve their Cottonelle flushable wipes and to improve the packaging they use for their non-flushable items, for the benefit of all customers, utilities and most important, the environment.

tpo: What commitment has Kimberly-Clark made related to its flushable wipes?

Saia: Their Cottonelle flushable wipes product already breaks down better than all the other flushable wipes on the market by a very wide margin, according to our testing and testing they've performed. It also meets the International Water Services Flushability Group specifications, although it doesn't currently meet the publicly available Specification 3 Disintegration Test, which is the wastewater industry's real test of flushability. They're about 10% away from getting there, and in the settlement they've committed to making up that difference by May of 2022. They've been actively working on it, they have assured us that they will meet that deadline, and the court will enforce their commitment to do so as part of the settlement agreement.



Michael Saia

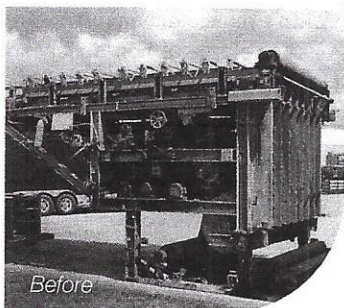
“Wastewater professionals nationally have been fighting wipes manufacturers and retailers since day one without success. This settlement sets a critical benchmark for flushable wipe dissolvability and product labeling standards.”

MICHAEL SAIA

tpo: How does Kimberly-Clark plan to improve wipes packaging?

Saia: They're going to make the "do not flush" symbol on the non-flushable wipes packages more prominent. They will do that by making it larger and by using colors that contrast with the background and with the other art that's on the outside of each package. They're going to ensure that it is on the front in a prominent location, so when that package is sitting on a counter, consumers will see a very distinct mark that reminds them how the product is supposed to be used and is not to be flushed.

tpo: Up to now, what has been the problem with the labeling of non-flushable wipes?



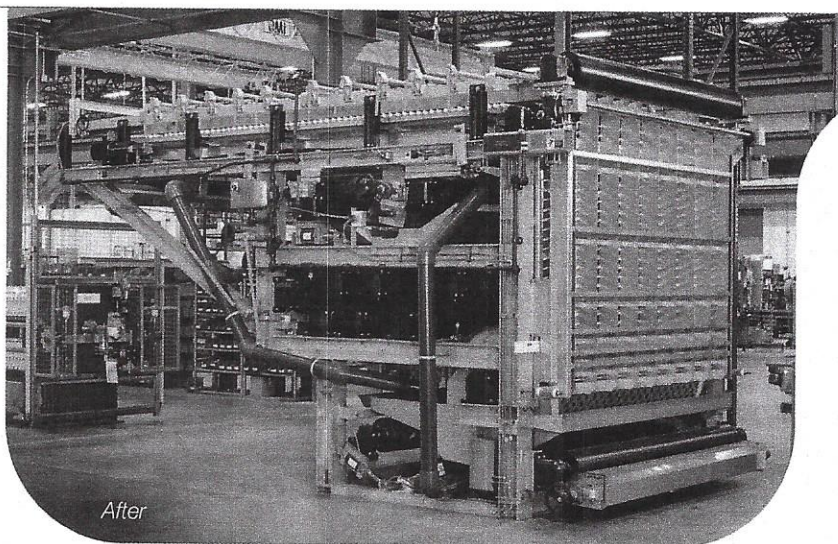
Renew equipment. Reduce spending.

Improve the performance and reliability of your thickening and dewatering process without a major investment in new capital equipment. With decades of expertise, Alfa Laval offers service agreements and complete rebuilds for your belt press or gravity belt thickener, ensuring that you continue to get the process results you need.

Increase capacity, improve cake dryness, reduce maintenance costs and more — all for less than the cost of new equipment.

Learn more or schedule service today:

www.alfalaval.us/rebuilds | customerservice.usa@alfalaval.com
(866) 253-2528



Saia: Non-flushable items typically contain a very small graphic, typically the size of a dime or smaller, in the same color, text and decorative design used on the package. So it blends in, it's camouflaged, and often it's on the bottom of the package, so that the only way to see it is when you take it off the shelf.

tpo: What experiences led Charleston Water to undertake this lawsuit?

Saia: In October 2018 we were having sanitary sewer overflows all across our collection system because of a major wipes blockage at our wastewater treatment plant. We put together a series of five social media posts that showed the impact to our staff, including the divers who were forced to deal with this totally preventable blockage in the dark, in raw sewage, working with their hands. It really humanized the issue we were facing.

tpo: What happened as a result of that social media activity?

Saia: The posts were picked up by local media, which turned into regional and national media coverage. Then we went viral globally. We became the most prominent wipes-plagued utility in America. Our wipes issues were the same as everybody else's, but we found a way to get it on the news across America and across the world through a little creativity and a willingness to participate in every media opportunity that came our way. That is how we rose to prominence in the world of issues related to wipes.

tpo: How did all that lead to the filing of the lawsuit?

Saia: After we reached that level of prominence, we were approached by the Robbins Geller Rudman & Dowd law firm in New York. They were litigating another class-action suit about wipes, and they realized that our



Wipes have been a persistent problem for Charleston Water and the clean-water industry in general. The settlement with Kimberly-Clark constitutes a significant step toward a solution.

ditional visibility would make us a very strong lead plaintiff. So we engaged them, and then we added Aqualaw, a firm we have used for various legal issues in the past. It has been a highly effective partnership. It was about timing while the iron was hot with an experienced and well-placed legal team.

tpo: Why does the lawsuit name retailers, who do not make but only sell wipes products?

Saia: Retailers are willing to put products on the shelf that say “flushable” when in fact they are not. I have seen personally, and I have seen photos of aisles in many of these stores with signs that say “Flushable Wipes.” Their willingness to sell the products, market them as flushable and stand behind them is a part of the problem.

tpo: How do you envision the lawsuit going forward with the remaining parties?

Saia: The Kimberly-Clark settlement is a giant wake-up call for all the other manufacturers of flushable and non-flushable wipes. They should take notice because our test results show that their products are likely major contributors to problems with home plumbing and sewer infrastructure. They should also notice Kimberly-Clark’s ability to make wipes that are truly flushable — showing that it can be done.

tpo: Do you see the settlement having impact in the marketplace?

Saia: Kimberly-Clark is now at a huge marketing advantage because our testing shows their product is flushable and they are willing to further improve it. Kimberly-Clark’s willingness to commit to that in a legal settlement, along with a couple of years of ongoing verification testing, should put their product at the top of every consumer’s list, especially consumers who care about their household plumbing and avoiding impacts to their public sewer system and their community. We implore the other manufacturers to improve their products to meet the industry standards, just as Kimberly-Clark is doing, or stop marketing them as flushable.

tpo: What has been the reaction to the settlement from other utilities?

Saia: Every utility we’ve spoken with has been 100% supportive. Many of them wondered if our suit would be effective. The Kimberly-Clark settlement is clearly showing them that it can be, and we hope it will be going forward.

tpo: To what extent do wipes remain a problem for Charleston Water?

Saia: Wipes are still a nightmare for our utility all day, every day. We continued to see increasing quantities of wipes throughout the pandemic. It was only getting worse by the month, and so we’ve had to increase preventive maintenance such as pump station cleaning and shaft cleaning. We were spending about \$250,000 a year specifically related to wipes. That has increased during the pandemic, and we will likely have to increase that amount in the years to come. Every time we do a planned or a corrective maintenance activity, we record whether wipes had an impact or not. We have very good data to quantify at least \$250,000.

tpo: Have your public education initiatives had an impact?

Saia: Public education is the ultimate key to removing wipes issues from the wastewater industry, but nobody has been able to make that work so far. When we went viral globally in 2018, we reached every person in our service area from a media metrics perspective between six and 10 times, yet we saw

zero change in wipes that were flushed. It didn’t reduce our maintenance issues and it didn’t reduce pump failures or the volume of non-flushables removed at our wastewater treatment plant. Even though we moved heaven and earth and did far more than many other utilities have done, we saw zero infrastructure impact. So, the solution is for the wipes industry to make better products, as Kimberly-Clark has, and for non-flushable products to be fairly labeled so consumers understand they should not be flushed.

tpo: Why do you suppose public education has not moved the needle?

Saia: We strongly believe that people are creatures of habit. If they are used to flushing wipes and not seeing a problem in their own home, there’s not a lot of incentive to make a change. Customers aren’t seeing an impact in their toilets or in their plumbing, and they’re not seeing an impact to their wallet, so they continue their habits. We’ll continue to use public education

“Wipes are still a nightmare for our utility all day, every day. We continued to see increasing quantities of wipes throughout the pandemic.”

MICHAEL SAIA

at every opportunity, but now we’ve found a secondary tool in this lawsuit to work with, and in some cases force manufacturers to improve their substrates and improve the labeling and the packaging of non-flushable items.

tpo: What does your ongoing public information program include?

Saia: We include wipes in any public education campaign we have, whether we’re in a classroom talking to kindergarteners or out in the community talking to groups of adults. We talk about what they could do to protect the environment and our infrastructure. We do demonstrations. We talk about what you can flush and what you can’t. We’ll continue to do that. Hopefully we can get hold of people at a young age and instill good habits that maybe they can take home to their mom and dad. One answer is for people to switch to a flushable wipes product, and at this time Charleston Water believes there is only one wipe that is truly flushable and safe for our system. **tpo**

Statement from Kimberly-Clark

Kimberly-Clark declined to grant an interview with TPO for this article but did issue this statement:

“Our settlement with the Charleston Water System validates the long-standing flushability claims of our Cottonelle flushable wipes and reflects the thorough testing of our product by experts in the wastewater treatment community, per the specifications of the International Wastewater Services Flushability Group.

“We are proud to be the only flushable wipe to have the confidence and support of the wastewater community and look forward to our partnership to ensure that Cottonelle flushable wipes continue to meet and exceed various flushability standards and specifications.”

EAT. SLEEP.
SAVE THE ENVIRONMENT.
REPEAT.

tpo

IT’S YOUR MAGAZINE. TELL YOUR STORY.

Send your ideas for future articles to editor@tpomag.com