

INDA /MWWCA collection study Jan 10,11 2012 at Westbrook Pumping Station, Maine.

Objective

This study was a follow up September 2011 study.

The aim of this study was to see if it was possible to identify potential root cause for pump clogging, by studying pump clogs generated with known material influent composition.

Day 1 Jan 10th

Present

Steve Ogle, Gayle Rece, David Powling, Kyra Dorsey, John Baker, Bob Ziek - INDA

Scott Firmin, Thomas Hume – Portland Water District

Aubrey Strauss – Maine Wastewater

Rob Villee- PARSA (WEF CSC)

Objectives for day

1. Collect screenings from 0.5" spaced bar racks using the automatic rack cleaner and diverting the material away from the wet press. Sort and measure material distributions using method established during September 2011 study, use this data as baseline for clogging experiment and to compare vs. prior data at facility
2. Attempt to clog pump by surcharging system and allowing flow to bypass the bar rack and enter directly to the wet well.

Sampling material – Cottage Place screenings

Collection of screenings started at 8am

The screen cleaner was left to run for ~2hrs

The flow was around 2.5 Mg/day, typical for sanitary flow.

4 buckets of material were transported to the Treatment Facility at Park Street for sorting and counting.

The buckets were filled 2/3 full with water, to help with separation and removal of materials.



Sorting and counting.

Small scraps of materials were not counted

Sorting of samples by pattern, type, and material structure was carried out by INDA and WEF.

The reference material folders used in September study were used again allowing several positive identifications to be made.

Materials were collected by category and a physical count made. For paper, there were many partial pieces, 3-4 of these smaller pieces were consolidated together for count purposes to estimate a sheet equivalent

Additionally, the materials were formed into mounds to get a volumetric representation. See photo below

Counting was concluded at noon.



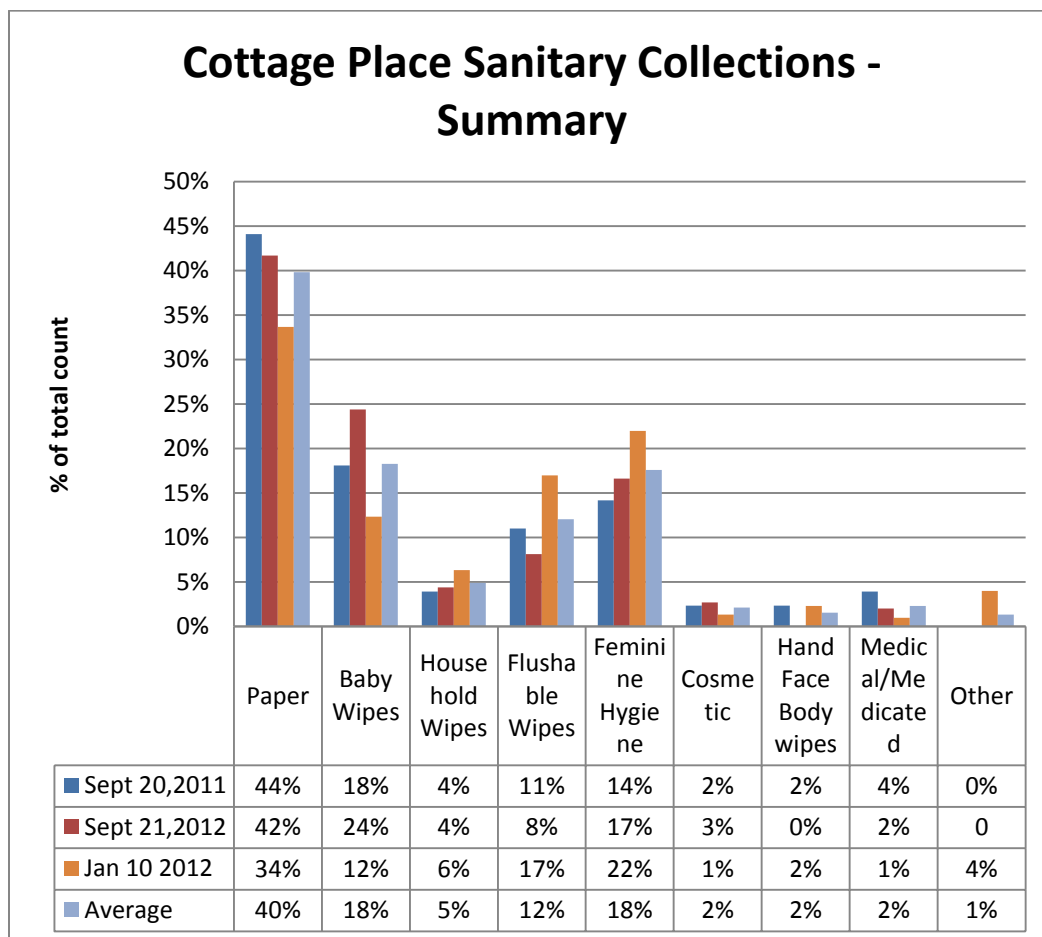
DSCN0714 01102012 All mounds

Results

Jan 10 2012 - Westbrook Sanitary Flow	Count		Mounds	
	#	%	#	%
Paper	101	34%	2	31%
Baby Wipes	37	12%	1	15%
Household	19	6%	0.5	8%
Flushable	51	17%	1	15%
Feminine Hygiene(Tampons, Pads, Applicators)	66	22%	1	15%
Cosmetic	4	1%	0.5	8%
HFB wipes	7	2%		0%
Medical	3	1%	0	0%
Other	12	4%	0.5	8%
Total	300		6.5	

Fem count breakdown

Tampons	58
Wipes	4
Top Sheets	2
Wrappers	2



Observations

Paper samples were again predominant; many pieces of paper were left uncounted and the total count for this category is low. A variety of paper was seen once more, with many serrated edges from wall dispensers seen.

Flushable wipes saw the highest distribution of any previous collection work.

3 of the very large **Medical wipes** at 13 x 8" were seen again in this collection.

Household wipes were found, several samples had separated plies looking like a scrim layer.

A large count of **fem products** (tampons) was noted. **Fem wipes** again presented the hardest task to identify and only accounted for 6 of the 66 or about 10% of the total feminine hygiene products.

A small count of **cosmetic and hand, face, body wipes** were identified using the reference file.

12 unidentified wipes were counted in the other category.

Day 1 Jan 10th p.m.

The throttle gate was opened just before 1pm. To prevent back up inside the station, all 3 pumps had been switched on to deal with the surge, whilst vibration readings showed the vibration levels doubling momentarily vs. normal running, no clog was observed in any of the pumps.

3 further attempts were made to surcharge and run into a single pump but with each subsequent surcharge so the vibration declined indicating that the solids were being scoured from the area locally in the 60" interceptor.

At 3pm the station was left to run through the night with a single pump managing the sanitary flow with the bar racks bypassed.

Day 2 Jan 11th a.m.

The pump ran through the night without clogging.

One final attempt was made to surcharge the system and run the flow through a single pump, this was not possible without flooding the station and the 2nd and 3rd pumps were deployed to prevent flooding. Again it was not possible to generate a clog.

The study was concluded and the group returned to Portland Water District offices to review historic flow and vibration data from the site dating back to 2007, review the data collected and draft this report.

Conclusion

Material distributions collected were broadly in line with the September 2011 study.

The study failed to generate the pump clog as intended and determination of root cause was not possible. Being unable to back up inside the station and direct the full flow through a single pump is a key difference with the surcharge clogs generated prior to installing the screening and the work carried out during this study.

Bringing in 3 new INDA members to assist with the study and gain valuable new exposure to the issue and bring new input to the ongoing discussion on education going forward was beneficial.

There was a discussion among the group on public education programs and it was agreed that focusing on Baby Wipes was a priority due to their volume in the waste streams and their indestructible nature. Household wipes would/may also be considered, because of their construction and size. The INDA group was also going to continue their discussion on bringing in other people (marketing and non-flushable) and on improved non-flushable labeling. There was a discussion regarding teaching others to do the forensic identification of pump clogs, and it was agreed that a scaled down version, focusing on Baby Wipes and a few other types that could be used as a handout at a seminar or workshop would be a good idea.

Acknowledgements

INDA would like to extend thanks to all those at Portland Water District who made the Cottage Place and Westbrook Treatment facility available for 2 days, and the operations team who manned the facility and helped the sampling run safely and without problems.

Further thanks goes to Rob Villee who made time in his schedule to spend 2 days at the study and getting so involved in the sorting and counting process.

This report was drafted by

David Powling, Gayle Rece, Steve Ogle, Bob Ziek, John Baker, Kyra Dorsey - INDA

Scott Firmin – Portland Water District

Rob Villee – Plainfield Area Regional Sewerage Authority (Chair of WEF collection systems committee)

January 11, 2012