



**Metropolitan Water Reclamation  
District of Greater Chicago**

THE IMPORTANCE OF PROPER  
**SAMPLE  
COLLECTION**

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Thursday, August 8<sup>th</sup>, 2019

The background of the slide is a light blue gradient. It is decorated with several realistic water droplets of various sizes, some with highlights and shadows, giving them a 3D appearance. The droplets are scattered across the slide, with a higher concentration in the top-left and bottom-right corners.

# TOPICS TO COVER

- Environmental measurements
- Hazards and personal protective equipment
- Collecting and preserving representative samples
- Consistency through standard operating procedures
- Defending data with documentation
- Consequences of departing from procedure
- Q&A

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# Environmental Measurements

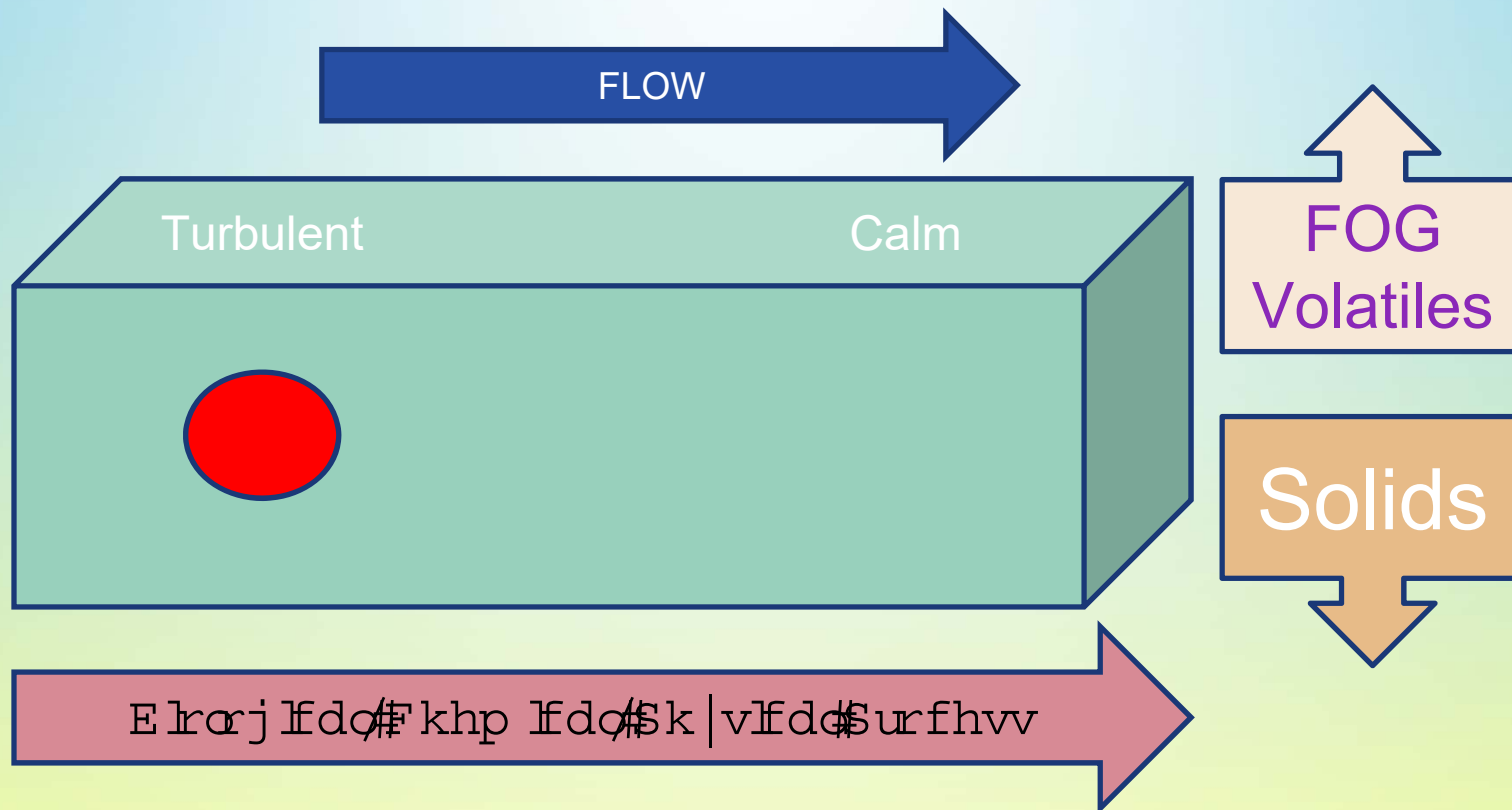
- Public utility responsible for protecting the local water environment and drinking water source
- Customers request information about local waterways and WRP outfalls
- Customers *within* District
- Customers *outside* District
- Customer expects *accurate* and *consistent* product

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# HAZARDS AND SAFETY MEASURES

- Face shields, respirators, safety goggles
- Disposable gloves (change as necessary)
- Long sleeves and impermeable shoes
- Boots and hard hat
- No food or drink, hand washing

# Collecting Representative Samples





# Collecting Representative Samples

- Correct container (bring extra)
  - Glass or plastic
  - Size
- Labels (indelible ink)

# Collecting Representative Samples

- Fill containers to **shoulder**
- Don't overfill
- VOC samples fill completely



# Preserving Representative Samples

## Thermal

- Coolers with ice
- Except for metals and fluoride

## Chemical

- $\text{H}_2\text{SO}_4$ ,  $\text{HNO}_3$   
 $\text{NaOH}$ ,  $\text{Na}_2\text{S}_2\text{O}_3$





The background of the slide is a light blue to yellow gradient. It is decorated with several realistic-looking water droplets and bubbles of various sizes, some with highlights and shadows, giving it a clean, fresh appearance.

# Preserving Representative Samples

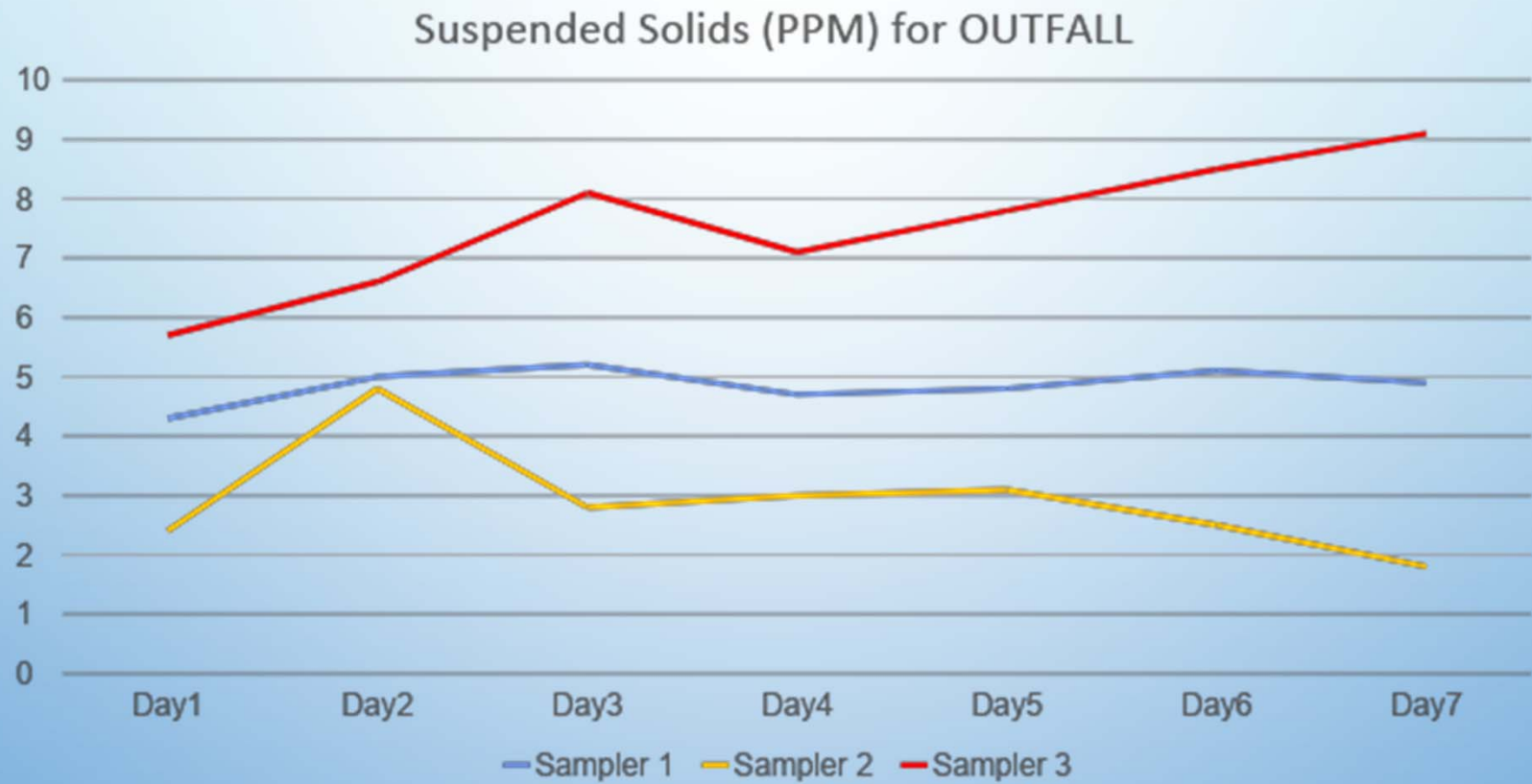
- Keep containers capped until collection
- Wear disposable gloves and change regularly
- Avoid touching inside of cap and bottle opening
- Start collection at cleaner sample points
- Rinse equipment with DI after collection
- Clean hands / Dirty hands

# Consistency

Samples are more reliable if collected according to standard operating procedures

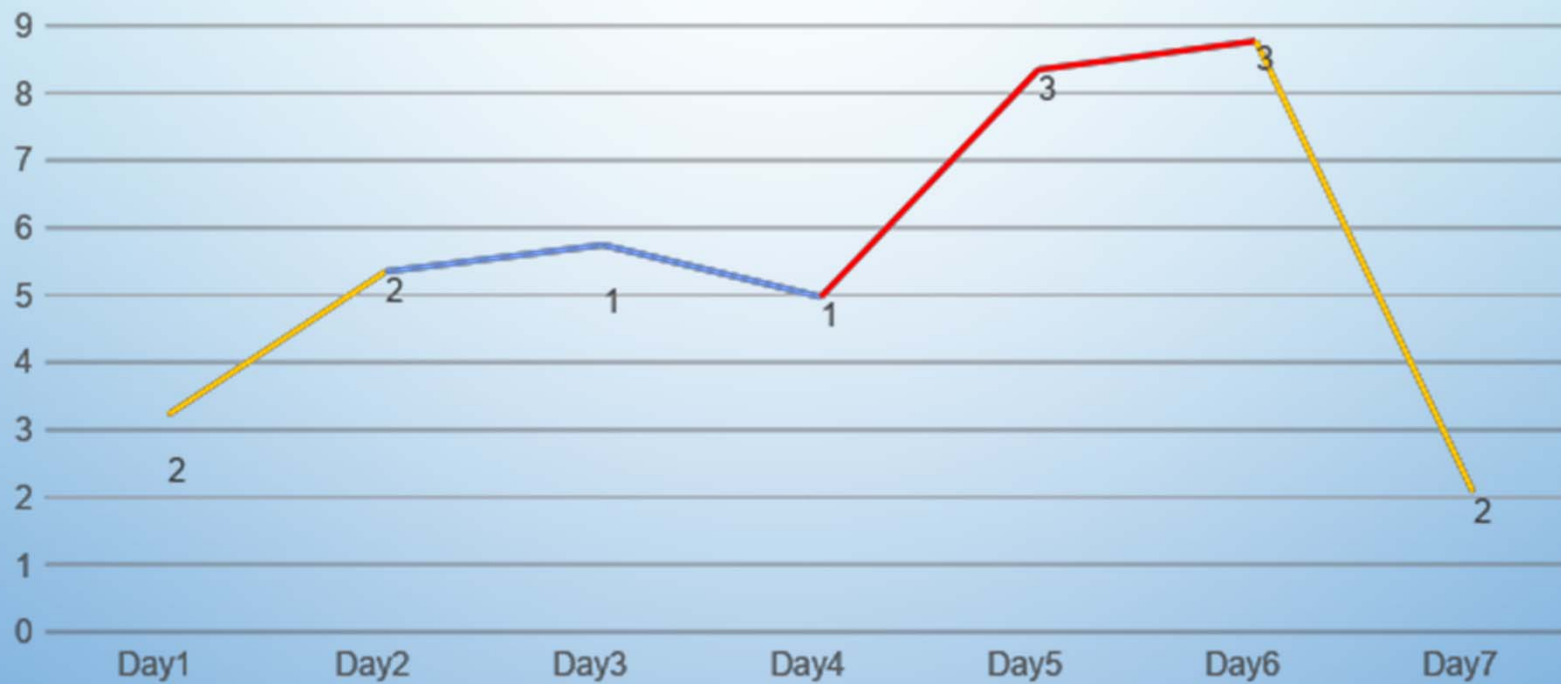
- Allows the same task to be completed by different people and produce consistent, reliable, precise results
- Less variability if all members of a department are trained from documented procedures
- Instills confidence in customer that measurements are of high quality

# RELIABLE SAMPLING

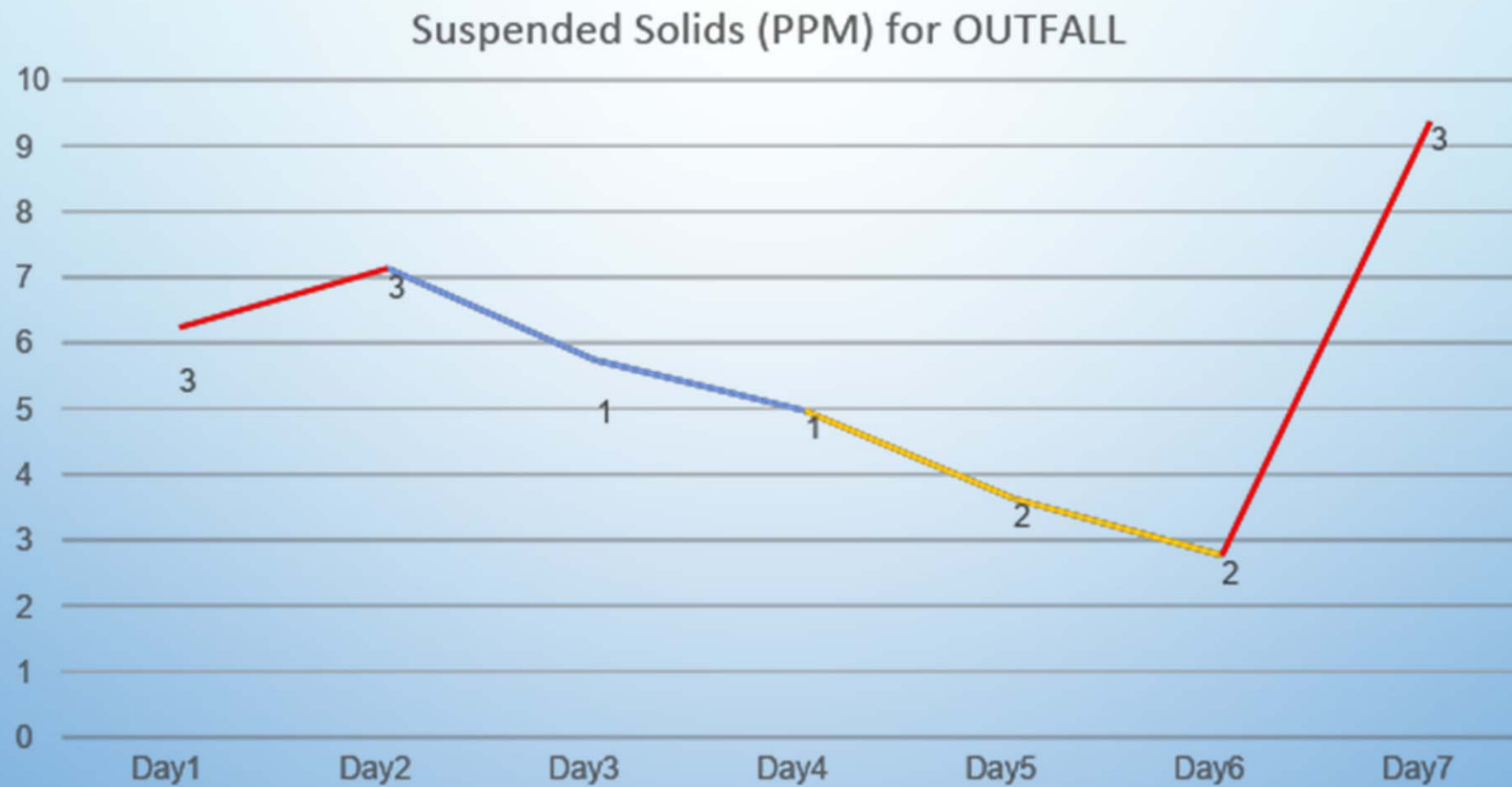


# ROTATING SAMPLER SHIFT #1

Suspended Solids (PPM) for OUTFALL



# ROTATING SAMPLER SHIFT #2





Deliver to the Calumet Lab

This Chain of Custody is a Legal Document.  
All relevant fields must be accurately completed.

**MWRDGC**

Client Contact		Project Manager:		Email:		1 of 1 COC's							
Metropolitan Water Reclamation District of Greater Chicago		Phone:		Lab Contact:									
		Analysis Turnaround Time		Carrier:		Job No.							
		TAT if different from below <input checked="" type="checkbox"/> Standard 10 day <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Low Level Mercury - method 1631E									
Phone:		Fax:											
Project Name: Low Level Mercury Analysis													
Report To:		Invoice To: MWRDGC											
4 Day Study AUG 06- AUG 09, 2018		Sample Date		Sample Time	Sample Type	Matrix	SDG No.						
Sample Identification													
WW 77	Lims#			Grab	WT	X							40 ml Vial Kits w/ 0.5 % BrCl
WW 77Field Blank	Lims#			Grab	WT	X							40 ml Vial Kits w/ 0.5 % BrCl
WW 78	Lims#			Grab	WT	X							40 ml Vial Kits w/ 0.5 % BrCl
WW 78 Field Blank	Lims#			Grab	WT	X							40 ml Vial Kits w/ 0.5 % BrCl
WW 113	Lims#			Grab	WT	X							40 ml Vial Kits w/ 0.5 % BrCl
WW 113 Field Blank	Lims#			Grab	WT	X							40 ml Vial Kits w/ 0.5 % BrCl
Special Instructions/QC Requirements & Comments:													
Sampler Name (Please Print):				Sampler Signature:				Date/Time of Sampling:					
Relinquished by:				Date:	Time:	Received by:				Date:	Time:		

**Metropolitan Water Reclamation District of Greater Chicago**  
**Custody Transfer Record for Plant Grab Samples**  
 (STFORMPLT)

To: Stickney Analytical Lab  
 Year: 2014

From: Stickney WRP

Collection Information			Composite Sample Type	LIMS ID	Container		For Lab Use Only				
Date	Time (Military)	By			Size	Type	IR Gun:	Temperature	Proper Container	Proper Label	Adequate Volume
6/22	7:00	Jm	Southwest Raw Sewage, S	8321214	2 1/2 gal	Plastic					
6/22	7:05	Jm	Southwest Raw Sewage, N	8321214	2 1/2 gal	Plastic					
	NO SAMPLE		West Side Raw Sewage	8321224	5 gal	Plastic					
	NO SAMPLE		TARP Pumpback	8321222	2 1/2 gal	Plastic					
6/22	7:35	Jm	Southwest Prel Effluent	8321211	2 1/2 gal	Plastic					
6/22	7:40	Jm	West Side Prel Effluent	8321223	2 1/2 gal	Plastic					
6/22	7:10	Jm	Battery A Effluent	8321156	2 1/2 gal	Plastic					
6/22	7:15	↓	Battery B Effluent	8321157	2 1/2 gal	Plastic					
6/22	7:20	↓	Battery C Effluent	8321158	2 1/2 gal	Plastic					
6/22	7:25	↓	Battery D Effluent	8321159	2 1/2 gal	Plastic					
6/22	7:30	Jm	Southwest Outfall	8321173	5 gal	Plastic					
6/22	7:00	Jm	Primary Sludge North	8321212	1 gal	Plastic					
6/22	<del>6:55</del> 7:05	Jm	Primary Sludge South	8321213	1 gal	Plastic					

Lab Initial & Date

Samples stored at 4±2°C immediately after collection: Y / N \_\_\_\_\_

In Custody of TPO I: \_\_\_\_\_

11-7 shift, date: \_\_\_\_\_

7-3 shift, date: \_\_\_\_\_

Day TPO, date: \_\_\_\_\_

6/23/17

# CONSEQUENCES OF IMPROPER SAMPLE COLLECTION

No Sample = No Analysis = No Data = Unhappy Customer

Bad Sample + Good Analysis = Bad Data = Unhappy Customer

Good Sample + Bad Analysis = Bad Data = Unhappy Customer

Good Sample + Good Analysis = Good Data = Happy Customer



## Gräv

- Z dvk#kdqgv# # hdu# oryhv
- Ohdyh#khdgvsdfh
- Uh0vdp sch#ip lwdnh#p dgh
- Surygh#Exwvvp huz lk#  
uhsuhvhwqdwylh#vdp sch#  
frqv lwhqwd
- Ehfrp h#dp blu# lk#  
grfxp hqwhg#surfhgxuhv
- Ryhu0grfxp hqwhg# R F

## Grqäv

- Wrxfk#qvgh#ierwolv
- Ryhu0kdqgv#rxu#ri# {wd
- Vxep wd#olz hg#vdp sch
- Wuhdw#vdp schv#glihuhqwd#  
edvhg#rq#z kr#kh#Exwvvp hu#v
- Uhd#vr0d#rq#q0shvrrq#  
wdlghj2revhuydwlrq
- Hwvp dwh#ru#deulfdw#hgwuhv#  
rq# kdlgh#ri# xwvrg |

The background of the slide features a light blue to white gradient. It is decorated with several realistic water droplets of varying sizes, some with highlights and shadows, positioned primarily in the top-left, top-right, and bottom-right corners.

# Q&A

## QUESTIONS/CONCERNS

The background is a light blue gradient, darker at the bottom. It is decorated with several realistic water droplets of various sizes, some with highlights and shadows, scattered across the top and bottom edges.

**THANK YOU!**