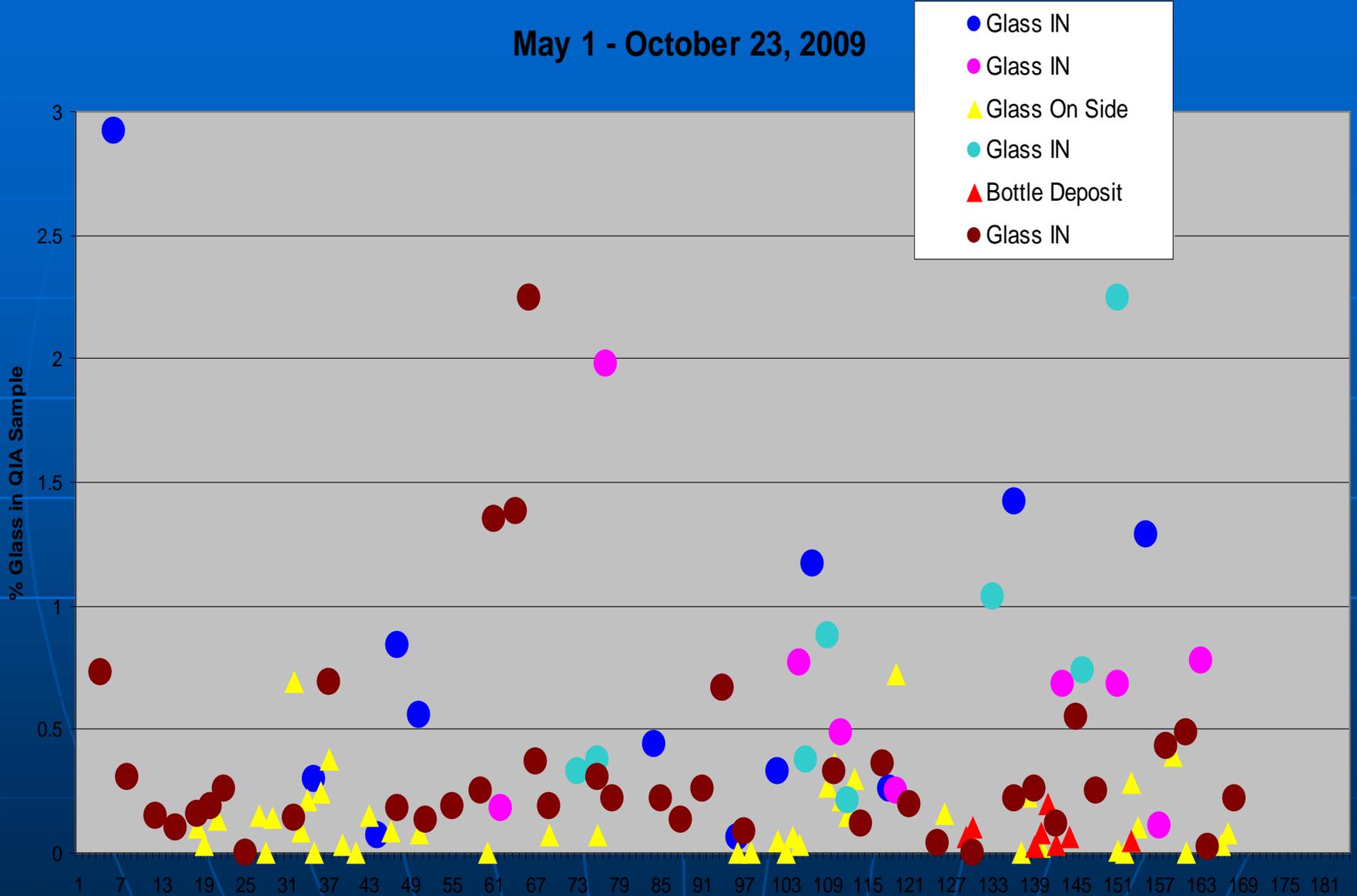


Impacts of Glass in a Deink Facility

Mill Experiences

May 1 - October 23, 2009



Glass Sizes



Glass Sizes



NORPAC DEINK
SAND CLEANERS
REJECTS (GLASS)

Supplier	Average % Glass Content	% of Total Volume	Approximate Tons Glass /month
Glass IN	1.5	13	20
Glass IN	0.66	5	3
ON Side	.14	30	4
Glass IN	.78	5	4
Bottle Bill	.08	8	0.6
Glass IN	.35	15	5
TOTAL		76	37

Approximate Cost Impact of Glass

Employee Impacts –

- Glass dust in air during daily cleanup
- Unplanned shutdowns due to mechanical failures
- Replacing plugged equipment

Annual Maintenance Cost –

Replace Valves – Estimated at \$60,000

Improved Metallurgy / Components – \$80,000

Replace Piping & Equipment - \$100,000

TOTAL - \$240,000

Fiber Replacement Cost –

At 37 tons/month and \$150/ton fiber =

\$5,500/month or \$66,000/year

Process Impacts

Equipment Damage

Conveyors

Pulper

Pumps

Valves

Additional Impacts

Reduced Quality to Poor Performing
Equipment