

ESTIMATE OF FEES OF ACCUMULATION OF SLUDGE IN STABILIZATION PONDS

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Introduction

- ALL FORMS OF BIOLOGICAL SEWAGE TREATMENT GENERATE MUD
- STABILIZATION POND  NOT DEMAND ROUTINE REMOVAL OF MUD
- HOWEVER THE MUD ACCUMULATED INSIDE THE PONDS REDUCE THE HRT AND UNDERMINE THE EFFICIENCY OF TREATMENT
- THE RATES OF ACCUMULATION MAY BE DETERMINED BY THE CUMULATIVE VOLUME MEASURED BY BATHYMETRY
- SAND SEDIMENTATION TANK IS ALSO IMPORTANT

MATERIAL AND METHODOLOGY

TO DETERMINE THE VOLUME OF MUD AND SAND ACCUMULATED IN THE PONDS WERE MADE BATHYMETRY → ADOPTION OF LONG LINES ALONG THE LONGITUDINAL AND TRANSVERSE, FORMING A GRID OF 5 X 5 METERS. IN EACH CROSS-AXIS WAS DONE TO MEASURE THE MANTLE OF MUD WITH DISH. THIS DISH TIED TO A ROPE STAGGERED EMERGED WHEN STOPPED ON THE MANTLE OF SLUDGE CONSISTING OF MORE DENSE MASS. THE READING COULD BE DONE WITH THE ROPE PULLED SLIGHTLY.

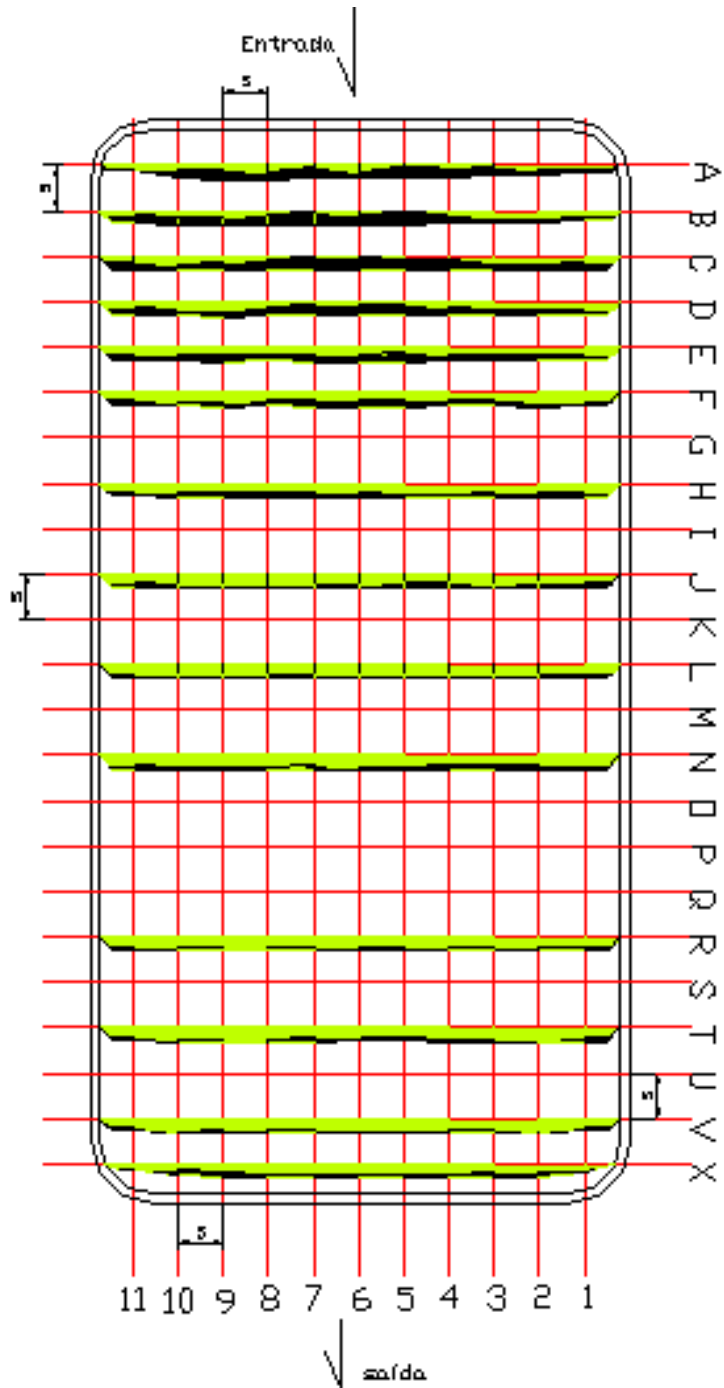


Figure 3 - longitudinal and transverse axes, and profiles of mantle of sludge



Figure 1-Dish being emerged in the pond



Figure 2-Boat being pulled along the axis

BESIDES THE READING OF THE HEIGHT BETWEEN THE MANTLE OF MUD AND THE SURFACE AREA, THE TOTAL DEPTH OF THE POND WAS MEASURED WITH THE INTRODUCING OF A ROD WITH NUMERICAL SCALE TO THE BOTTOM OF THE POND, OVERCROSSING THE MANTLE OF SLUDGE.

Results

- WTP POND PAULISTANO I: A FACULTATIVE CELL WITH SAND SEDIMENTATION TANK
- WTP POND CITY PETROPOLIS: A FACULTATIVE CELL, WITH NO SAND SEDIMENTATION TANK
- WTP POND PAULISTANO II: A ANAEROBIC CELL, AN FACULTATIVE, WITH NO SAND SEDIMENTATION TANK
- WTP POND JABORANDI: A ANAEROBIC CELL, AN FACULTATIVE, WITH A SAND SEDIMENTATION TANK
- WTP POND ICÉM: A ANAEROBIC CELL, AN FACULTATIVE, WITH NO SAND SEDIMENTATION TANK

TABLE 1 - DATA CONSIDERED TO ESTIMATE RATES OF ACCUMULATION OF MUD

	WTP City Petrópolis	WTP Paulistano I	WTP Paulistano II	WTP Jaborandi	WTP Icem
Total years	24	23	21	14	5
average per years (inhab/y)	942	4896	6839	5433	5598
Volume of sludge in anaerobic pond	0	0	3700	0	1511
Rate of accumulation of sludge anaerobic pond - "L / inhab x year"			26		54
Volume of sludge in the facultative pond	1150	2164	1293	3192	556
Rate of accumulation of sludge facultative pond - "L / inhab x year"	51	19	9	42	20

CONCLUSION

IT APPEARS THAT THE RATES OF ACCUMULATION OF SLUDGE PER PERSON PER YEAR ARE DIVERSIFIED IN LINE WITH THE OPERATIONAL CHARACTERISTICS OF EACH OF THE SYSTEMS. THIS IS BECAUSE MIXED WITH SLUDGE, ARE ALSO ACCUMULATED SAND, TAKING THE SAME SPACE INSIDE THE POND.

THESE RATES CAN HELP THE DESIGNERS OR EVEN AN OPERATION TEAM TO PREDICT HOW OFTEN OR HOW LONG IT WILL BE NECESSARY TO PROMOTE THE REMOVAL OF SLUDGE TO DO NOT AFFECT THE TREATMENT EFFICIENCY.

THANK YOU