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TECNICAS DE RADIOTRAZADORES APLICADAS A ESTUDIOS DEL MEDIO AMBIENTE Y CONTROL EN LA CETESB

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[This paper presents the techniques and experiences acquired during 19 years of Radioactivity Division at CETESB, specially about radioactive tracer application on studies and determination of hydraulic and hydrological parameters in environmental problems.

The Radioactivity Division of CETESB has been used the radioactive tracers as normal routine application and it has demonstrated to be a accurate and usefulness tool in this environmental field. Among several applications of radio tracer techniques at CETESB we have emphasized in this paper as follows:

- Flow-rate measurement in streams, channels, industrial and domestic effluents using continuous injection of radio tracer;
- Transit time and longitudinal dispersion in rivers using pulse injection of tracers and monitoring the passage of radioactive cloud at downstream points;
- Detection of residence time, dead space and channeling using pulse injection method in systems of waste water like anaerobic digestors, tanks and lagoons;
- Detection of irregular waste water connection at pluvial water drainage channels and pipes;
- Studies of sewage systems performance and dispersion in bodies of water;
- Measurement of bed load transport of sediments in rivers using surface radio tracer labeling; and
- Measurements of dispersion plumes and mixing zones in rivers, downstream effluent discharge points.]

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RESPUESTA AL TRAZADO Y MODELACION DE CORRIENTES URBANAS

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[The Arrudas River flows across Belo Horizonte, the third largest city in Brazil, and receives most of its liquid wastes and shows a highly transient regime over a day's period. A wastewater treatment plant being planned required a sampling scheme that would track the same parcel of water along successive sampling stations. A radioactive tracer (Br^{82}) was chosen to define time of passages, since high turbidity and excess of suspended solids prevented use of