

## STUDY OF AIR DISPERSION OF VOC FROM FUELS STORED IN A SET OF TANKS IN A STORAGE FACILITY

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Petrobras Transpetro, is a full subsidiary of Petroleo Brasileiro, for the bulk transportation and storage of petroleum, byproducts and natural gas through pipelines and ships, and the operation of operate terminals. As part of its expansion and development program, the company has installed a fuel distribution base in the city of Candeias. The operation of this base required an environmental permit granted by the environmental state agency, CRA. The agency requested an air emission inventory and dispersion study, mainly addressing fugitive emissions of volatile organic compounds (VOC) from a set of 12 storage tanks. The study, was performed and comprised a number of steps including the inventory of VOC from tanks, equipment and fuel transfer operations, that it was built by using the program TANKS, 4.0. The inventory findings indicated that 688,785,351.2 lb/yr of products are handled in the storage area, resulting in a fugitive emission rate of 223,648.1 lb/yr of VOC, distributed as follows: Type A gasoline 89.67%; anhydrous alcohol 5.16%; Diesel oil 5.03% and fuel oil 0.14%. The study identified a higher contribution of BTX, distributed as follows: xylenes 5.3%, 1,2,3-trimethylbenzene 5.2% and toluene 2.3%. Based on these results the model ISCST3 was applied to assess the impact of VOC concentrations on the air quality of the in Candeias regions. The magnitude of the maximum concentrations calculated by the model was considered low when compared to values observed for similar boundary conditions found in international literature. Calculated concentrations were then compared to values measured by Candeias automatic station.