RECOVERY OF PETROL VAPOUR AT A BULK STORAGE FACILITY

By

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DECLARATION BY STUDENT

I, CORNELIA VENTER, hereby declare that the work as contained in this document was compiled and set out by myself and it has not been submitted to any other university.

SIGNED ON THE 24th DAY OF NOVEMBER 2003.

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SYNOPSIS

VOC emissions are emitted during the various storage and distribution stages of petrol. These emissions contribute to the formation of smog and the control of these emissions has been applied internationally for some years. Vapour recovery is the preferred control technology after prevention and minimisation. The application of vapour recovery of petrol in South Africa has been limited and the first vapour recovery unit in the country was installed at the Engen-Wentworth storage and loading facility in 2001. Petrol loading data and vapour analyses data were used to determine the theoretical and experimental filling emissions from the Engen bulk storage facility. The average filling emission at the Engen facility was 0,08% compared to a value of 0,05% in Europe. It is recommended that further research be conducted to determine the vapour collection efficiency at the Engen facility, and to assess VOC emissions from the other stages in the overall petrol storage and distribution system.

KEYWORDS: volatile organic compounds, carbon vacuum adsorption process, petrol, vapour, vapour recovery systems, bulk storage facility

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ABBREVIATIONS

BAT	Best Available Technology/Technique
CAA	Clean Air Act
CAPCO	Chief Air Pollution Control Officer
CFR	Code of Federal Regulations
CVA	Carbon Vacuum Adsorption
EMCAs	Environmental Management Co-operation Agreements
EPA	Environmental Protection Agency
EU	European Union
GLO	Groundlevel Ozone
GNAs	Good Neighbour Agreements
IPPC	Integrated Pollution Prevention and Control
NAAQSs	National Ambient Air Quality Standards
ORVR	Onboard Refuelling Vapour Recovery
PLV	Preloading Vapour
POCP	Photochemical Ozone Creation Potential
RVP	Reid Vapour Pressure
TOMA	Tropospheric Ozone Management Area
VOC/s	Volatile Organic Compound/s
VRU	Vapour Recovery Unit
UNECE	United Nations Economic Commission for Europe