



BENZENE EXPOSURES EVALUATED

Background	<p>The largest petroleum refinery in Brazil found a higher than expected rate of leukopenia and leukemia in the workforce. Initial samples for airborne hydrocarbons collected by in-house analytical staff had indicated benzene exposures significantly above the OSHA Permissible Exposure Limit (PEL). The refinery operator requested an independent evaluation of the exposures of over 2,000 employees to benzene, toluene, ethylbenzene and xylenes (BTEX) throughout the refinery.</p>
Our Approach	<p>Patrick Rafferty was retained to lead the independent evaluation. The enormity of data to be collected required the assembly of a team consisting of high-level expertise from the US and the development of local talent to execute the evaluation program. The investigation included extensive interviews with line supervisors to develop a qualitative description of the duties of each job function with respect to aromatic hydrocarbons, including BTEX. This information was used to combine employees into homogenous exposure groups.</p> <p>Local chemical engineers were trained as industrial hygienists to complete the required sampling, record-keeping and chemical analysis of collected samples. A laboratory was established and successfully participated in the AIHA Proficiency Analytical Testing Program.</p>
Benefits and Added Value	<p>The grouping of employees into homogenous exposure groups significantly reduced the number and cost of samples to be collected and analyzed. The use of local talent enabled this complex, multi-year program to be completed within the project budget, and left a legacy of trained industrial hygienists to the community.</p>