



PAT MCCRORY  
*Governor*

DONALD R. VAN DER VAART  
*Secretary*

MICHAEL SCOTT  
*Director*

TO: Responsible Parties, Environmental Service Companies, and Consultants

FROM: Stephen A. Barnhardt, UST Section Chief  
Scott Bullock, Corrective Action Branch Head JSB

DATE: July 26, 2016

SUBJECT: Guidelines for North Carolina Action Limits for Total Petroleum Hydrocarbons (TPH)

The purpose of this guideline is to update soil contamination cleanup action levels, for petroleum releases. This guideline sets initial petroleum contamination cleanup actions levels that will protect North Carolina's groundwater resource for future use and prevent future groundwater problems through cleanup of petroleum contaminated soil. Please note that a petroleum release or discharge is defined as "any spilling, leaking, emitting, discharging, escaping, leaching or disposing into groundwater, surface water, or subsurface soils."

The U.S. Environmental Protection Agency (USEPA) does not have federal standards for soil remediation of total petroleum hydrocarbons (TPH). The USEPA's Underground Storage Tank (UST) Program also has not developed federal guidelines for cleanup of soils contaminated with petroleum, but has decided to leave the selection of soil cleanup levels to the discretion of individual states. For this evaluation of the TPH action limit the bases for existing state TPH cleanup action limits were obtained from literature sources and state guidance documents (attached). The lowest soil cleanup level proposed for TPH is North Carolina at 10 ppm.

The North Carolina Department of Environmental Quality (DEQ) UST Section has evaluated the current action level of 10 mg/kg (ppm) for TPH for gasoline and diesel. The action level is defined as the concentration of a contaminant that if exceeded may require further regulatory action such as cleanup or monitoring. TPH is defined as the concentration of petroleum fuel contamination present as carbon chains in the range of C6 through C35. TPH is a mixture of chemicals and they are all composed mainly from hydrogen and carbon, called hydrocarbons. Some chemical constituents of concern that may be found in TPH are benzene, ethylbenzene, toluene, and xylenes. The North Carolina action level of 10 ppm TPH has been observed to produce MADEP hydrocarbon ranges and constituent specific analyses of less than the reporting limit in the majority of cases. DEQ's UST Section has evaluated the TPH action level based on the mobility of the constituents, relative toxicity of the hydrocarbon ranges, and a review of other state's TPH action levels.

**Beginning immediately, the DEQ UST Section has set a TPH GRO action level of 50 ppm and a TPH DRO action level of 100 ppm. In addition to the TPH GRO analysis soil must also be analyzed for benzene, ethylbenzene, toluene, and xylenes.** Benzene, ethylbenzene, toluene, and xylenes should be calculated from the TPH GRO peaks. The UST Section will evaluate the analyses in order to determine if the TPH action level may be raised or lowered in the future. Please note that current reporting limits for TPH must be maintained.