Texaco's Misuse of the TCLP Test in Ecuador

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1. In the mid-1990s, Texaco conducted a limited "cleanup" of contaminated oil waste pits in the Napo Concession of Ecuador. The scope of the "cleanup" as designed was extremely narrow. It addressed only 16% of the 916 waste pits that were built and used by Texaco – Texaco did nothing at 84% of their waste pits, despite the fact that repeated sampling has conclusively demonstrated that nearly all of the pits are highly contaminated with petroleum and metals at concentrations hundreds of times higher than Ecuadorian law. The clean-up did not address groundwater contamination, health issues generated by oil contamination, nor problems in the infrastructure designed, built, and left by Texaco.

2. For the few sites where Texaco conducted its alleged cleanup, it used the Toxicity Characteristics Leaching Procedure (TCLP) test to determine whether a cleanup was successful or whether additional cleanup work was necessary[1]. Specifically, Texaco used 1,000 mg/L total petroleum hydrocarbons (TPH) in the TCLP test as its cleanup standard. If the TCLP test results at a site were less than 1,000 mg/L for TPH, Texaco declared that the cleanup at that site was successful and that no further work was necessary[2].

3. The TCLP test was designed by the U.S. Environmental Protection Agency (EPA) to determine whether soil (or waste material) is classified as hazardous, which triggers special disposal requirements. In the test, the contaminated soil is mixed with slightly acidic water, the water and soil are then separated, and the contaminants that leach out of the soil into the water are measured. The TCLP test was designed to mimic the leaching of contaminants from waste in municipal landfills into groundwater. It thus does not directly measure contaminants in the

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soil, but rather measures the contaminants that can leach out of the soil into groundwater.[3]

4. The cleanup standard that Texaco used, 1,000 mg/L TPH in the TCLP test, is so high that no matter what Texaco did at a site, soil would pass the test. Since the TCLP test measures contaminants that leach out of soil into water, the contaminants have to be able to dissolve into the water to show up in the test. Crude oil and water do not mix well, and thus very few of the components of crude oil show up in a TCLP test. In fact, the water solubility of pure crude oil is typically 10 mg/L or less,[4] which is significantly below Texaco's cleanup standard of 1,000 mg/L. Thus if Texaco did nothing to clean-up a site contaminated with pure crude oil, the results easily would still pass Texaco's cleanup standard. No matter what "remediation" steps Texaco took, including doing absolutely nothing or, conversely, dumping *more* crude oil on the ground, the TCLP-generated results would meet the cleanup standard.

5. The outrageousness of Texaco's 1,000 mg/L cleanup standard is demonstrated by data on actual soil contamination. Every soil sample tested by Texaco had less than 5 mg/L TPH by the TCLP test (5 mg/L was the detection limit in the tests they conducted), and therefore passed their cleanup standard by at least a factor of 20.[5] Yet the same sites have up to 207,000 mg/kg TPH actually in the soil[1], which is over 20% oil by weight. This fact shows how inadequate the TCLP test is at measuring crude oil in soil, and how outrageous Texaco's 1,000 mg/L TPH TCLP cleanup standard is.

6. Another demonstration of the outrageousness of Texaco's cleanup standard in Ecuador comes from the chemical benzene, a known human carcinogen. Of the chemical compounds that are naturally present in crude oil, benzene has the highest water solubility. Therefore, most of the TPH that leaches from crude oil into water (such as in the TCLP test) is benzene[3]. In the U.S., waste that has more than 0.5 mg/L benzene by the TCLP test is classified as hazardous waste, and by law it must be disposed of in specially designed and managed hazardous waste landfills.[6] In Ecuador, Texaco's cleanup standard of 1,000 mg/L by the TCLP test allows for soils that are up to 2,000 times more contaminated than soil classified as hazardous waste in the U.S. to "pass" their clean-up criterion and be considered "remediated".

7. Recently two Chevron lawyers and seven former Ecuadorian government officials were indicted in Ecuador for fraudulently claiming that Texaco's cleanup was completed successfully, when in fact it was not. Texaco's use of the TCLP test as its cleanup standard illustrates how Texaco grossly manipulated scientific tests as part of the cleanup certification process.

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[1] When Texaco's "clean-up" project in Ecuador was nearly finished, the company added another cleanup criterion of 5,000 mg/kg TPH in soil. This value is 5 times higher than allowed by Ecuadorian law and roughly 50 times higher than many state standards in the U.S. However, even this inadequate standard was not used because the bulk of the "remediation" had been completed.

[2] Texaco Petroleum Company. 1995. *Plan de Accion de Reparacion Medioambiental Para el Antiguo Consorcio Petroecuador-Texpet.* Prepared by Woodward-Clyde International, Inc. and Smith Environmental Technologies Corporation.

[3] http://www.epa.gov/epawaste/nonhaz/industrial/guide/pdf/chap2.pdf

[4] J. Van Eyk. 19917. *Petroleum Bioventing*. A.A. Balkema, Rotterdam.

[5] Woodward-Clyde International. 2000. *Remedial Action Project Oriente Region, Ecuador.* Final Report. Prepared for Texaco Petroleum Company.

[6] U.S. Code of Federal Regulation at 40 CFR 261.24.