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Overview of the Available Analytical Results for Creosote-Treated Railroad Ties (CTRT)

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In the latest proposed rule for Non-Hazardous Secondary Material (NHSF), EPA asserts that the used railroad ties contain pollutants at concentrations that are greater than other traditional fuel oils. Attachment B comprehensively demonstrates that for most Hazardous Air Pollutants (HAP's), when compared to other traditional liquid fuels the CTRT is on balance consistently either lower than or roughly equal to the fuels. If it is higher for one or two HAP compounds when compared to a traditional fuel, it is still significantly lower when viewed comprehensively. When the total HAP contents detected in the CTRT is compared to the traditional fuels, the total is lower than all three traditional fuels evaluated in Attachment B.

Attachment B contains analytical results from seven used railroad tie samples collected from three different sources. Two of the sites that process CTRT derived fuel were National Salvage, outside of Selma Alabama, and Stella Jones in Duluth Minnesota. Each of these sites processed used railroad ties through chippers and loaded the chipped wood onto trucks for transportation to sites that use CTRT as fuel. Three samples were collected at each of the two chipper sites, and each of the three samples was taken from a separate truck. These were then placed into airtight sampling canisters and sent to the Test America Laboratory located in Canton, Ohio. This laboratory had experience in analyzing solid materials such as wood chips. The laboratory further processed the samples so that the material to be tested was further ground to pass a 3 mm sieve. These samples were then extracted and analyzed for selected semi-volatile organic compounds as indicated in Attachment B. These included a wide array of PAH and PAH-related compounds, as well as a few chlorinated compounds such as hexachlorobenzene and pentachlorophenol. The results of this testing, in addition to copies of the original laboratory reports, were published in a report titled: "Evaluation of Used Railroad Ties Treated with Creosote for Polynuclear Organic Material (POM) which Includes Polynuclear Aromatic Hydrocarbons."

A second report titled: "40 CFR Part 241, Subpart B-Crosstie Derived Fuel (CDF) Categorical Petition for a Non-Waste Determination," authored by M.A. Energy Resources, LLC. The author collected several aliquots of CTRT; enough material suitable to use for analyses for essentially all of the pollutants on the HAP list, including Method 8260B volatile organics, Method 8270C Semi-volatile organics, and pesticides. The detected results are presented in Attachment B. The laboratory used for this report was ALS in Tucson, AZ. Among the analytes

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that were assayed in the CTRT were many chlorinated organics (including hexachlorobenzene, penta-chlorophenol, as well as several pesticides). None of these analytes were detected in the analyses of the CTRT material.

The results from these CTRT analyses are compared to available analyses for several different traditional oil fuels: #2 Fuel Oil (Diesel), Residual Fuel Oil 35, and Bunker C Residual Fuel. API reference standards for each of these fuels were compiled by R.J. Irwin, et. al. and disseminated by branches of the Federal Government (see footnote (3) in Attachment B). This document focused mostly on semi-volatile organic contaminants in fuel oils. Volatile organics results for #2 Fuel Oil were taken from a paper titled: "VOC Composition of Current Motor Fuels and Vapors, and Collinearity Analyses for Receptor Modeling" (Jo-Yu Chin and Stuart Bateman, Chemosphere, 2012 Mar; 86(9): 951-958. (See Footnote (6) in the accompanying chart). This paper contained the results of several volatile organics that are on the EPA HAP list.

Hexachlorobenzene (HCB) and Other Non-PAH compounds Analyzed and not Detected

In the Proposed Denial, EPA states that used railroad ties processed for fuel contain hexachlorobenzene. EPA has not, to our knowledge, provided any actual laboratory analytical reports to confirm this claim. Attachment B shows that for the seven samples of CTRT analyzed by two different laboratories, hexachlorobenzene was reported as "not detected" in all seven CTRT samples analyzed. The laboratory for six of these ties (Test America, Canton) was requested to report all detections, even those below the reporting limit (RL), but above the Method Detection Limit (MDL). (Such detections are qualified by the laboratory with a "J", meaning the compound was detected as present, but the result was below the accurate level of quantitation). There were no detections of Hexachlorobenzene, even at the MDL. The (non-detected) MDL's for the six samples ranged from <7.8 to <15.0 mg/kg. When converted to percent, this equates to between less than 0.00078% to 0.0015%.

In addition to Hexachlorobenzene, the samples were also analyzed for 2,4 dinitrotoluene, 2,6 dinitrotoluene, and pentachlorophenol. None of these compounds were detected in the analysis, even down to the MDL.

Overall Results

At the bottom of Attachment B, the percent values of all available detected analytes are summed to provide an overall percentage of HAP compounds contained in the CTRT samples and the traditional fuels. Neither the traditional fuels nor the CTRT samples had available assays for every possible HAP compound. However, similar numbers of HAP compounds that were likely to be present were assayed for every sample. The percentage of HAPs analyzed for the CTRT is in every case lower than the similar list of HAPs reported for the traditional fuels.

Based on the data described above and included in Attachment B, the HAP content in CTRT is lower than the sum of HAPs detected in the three traditional fuels contained in the chart: #2 Fuel Oil, Residual Fuel #5, and Bunker C Residual Fuel.