



C15 The Road to the Supreme Court

James S. Smith, PhD, Trillium, Inc., 28 Graces Drive, Coatesville, PA 19320-1206*

After this presentation, attendees will understand the chemistry behind the contamination at a contaminated railroad and agricultural chemical site and the reliability, or lack thereof, of the analytical data presented to the court.

This presentation will impact the forensic science community by illustrating the questionable nature of one set of data that was presented to, and ultimately used by, the court in apportioning CERCLA liability.

Burlington Northern v. United States, 129 S.Ct. 1870 (2009) was the first CERCLA action in which a district court determined, using the data presented as evidence, the degree to which the parties contributed to the contamination at a site and apportioned liability accordingly. In 1995, the railroad companies requested an evaluation of the analytical chemistry and the fate and transport of agricultural chemicals at a site in Arvin, California. The chemicals of concern were:

- Dinoseb - a herbicide used for potato crops
- 1,2-Dichloropropane (1,2-DCP) - a nematocide used for root crops
- cis- and trans-1,3-Dichloropropene (1,3-DCPe) - a nematocide used for root crops
- 1,2,3-Trichloropropane (1,2,3-TCP) - an impurity in both 1,2-DCP and 1,3-DCPe

A small portion of the site was leased from the railroads by the agricultural commodity provider. Since the owners of the leased site were without funds, the USEPA, as plaintiff, was suing the railroads and the manufacturers of the chemicals of concern for investigative costs and remediation expenses.

The USEPA conducted a majority of the investigative sampling and analysis activities of soils and groundwater on and adjacent to the site. The analytical results for soils and groundwater indicated widespread contamination by the chemicals of concern. However, the soil results for the leased property contained only a few “hits” of relatively low concentration. The main difficulty with the EPA data was that its validity was highly questionable. There were two fundamental reasons for the EPA data to be of questionable value for their investigative purposes:

1. Sampling highly contaminated soil immediately prior to sampling a supposedly contaminant-free background soil boring. For example, a sample 400 feet off site at 45 feet below ground surface (bgs) contained dinoseb at 1,100ug/kg (ppb), but there were non-detects at 25 and 35 feet below the surface. The boring that was sampled prior to the background boring was in the most highly dinoseb-contaminated area of the site.
2. Analytical chemistry for the analysis of 1,2,3-TCP was done by the EPA with an on-site laboratory utilizing a gas chromatograph (GC). The calibration of the GC and the detection of 1,2,3-TCP in pure water blanks indicated that the reported values for 1,2,3-TCP in soils were unreliable at values below 100 ppb.

With the best data, there were only two soil samples containing dinoseb that were found on the railroad property. Both of these “hits” were not valid because the GC retention times were different from the calibration retention times. Thus, EPA did not have any valid data demonstrating contamination emanating from the railroad property.

Groundwater was about 70 feet bgs and moved southwest in the 1990s when these investigations were being done. The site’s unlined wash basin was the main avenue for dissolved chemicals to be transported to the groundwater. Mounding of the groundwater beneath this wash basin and a down-gradient potato shipping wash basin pushed some of the chemicals of concern to the west and beneath the railroad property. This location of the chemicals in the groundwater was exploited by the EPA during trial, along with the language of “joint and several,” all the way to the Supreme Court.

CERCLA, Apportionment, Chemistry