

“Toxic chemicals referred to here may have been a 50/50 mixture of the herbicides 2,4-D and 2,4,5-T, otherwise commonly known as Agent Orange (AO), and/or 2,4,5-T in isolation from other herbicides. The term ‘Orange Herbicide’, as labelled by the U.S. military, was a 50/50 formulation of 2,4-D and 2,4,5-T to definite specifications of the US military. During the manufacture of 2,4,5-T, the toxic chemical 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) was generated and was initially an unknown toxin in this herbicide. By the mid 1970’s the presence of TCDD in 2,4,5-T was commonly known. However, there is evidence that TCDD was known as a by-product of the 2,4,5-T manufacturing process back to the mid 1960’s. Herbicides were also used for perimeter spraying and reducing vegetation along right of ways and roadsides in the PCZ.

Table 2 titled Schedule B Commodity by Country Domestic/Merchandise (<http://catalog.hathitrust.org/Record/000497548>) clearly shows the transport and exportation of the herbicides 2,4-D and 2,4,5-T to Panama 1973-1977. It is unclear whether these two herbicides were, in fact, in an Agent Orange composition (as defined by US military specifications) as a shipping commodity, or they were shipped separately. They may have been mixed on site in the PCZ, or were, conceivably, applied separately. However, with respect to toxicological properties, it makes no matter whether these two herbicides were mixed or not. The very fact that 2,4,5-T was used is sufficient grounds to conclude that TCDD was applied wherever 2,4,5-T was used as a vegetation control agent. The TCDD content of the 2,4,5-T varied over time, but regardless, it was present in this herbicide and introduced to the PCZ environment. Unfortunately for service personnel, there were no attempts, to my knowledge, to ascertain the TCDD content of 2,4,5-T used in the PCZ or, for that matter, in PCZ soils or any other environmental media. TCDD in soil can remain a toxic component of the environment for over 100 years (Paustenbach, et al., 1992).”