

Understanding Science and Scientific Methods:

An Overview for Lawyers

SUMMARY – 12 September 2005

Class on 29 August 2005 Covered Topics 1 and 2.a. on the Syllabus

I. Overview – The Collision of Science and the Law –

A. Differences between Science and the Law

B. **Epistemological questions:** (Epistemology – Part of Philosophy that deals with the origin, nature, and limits of knowledge)

1. **What is scientific knowledge?**
2. **How do you distinguish science from non-science? (Scientific Validity)**
3. **When is scientific knowledge reliable?**
4. **Should scientific knowledge have a special status?**

II. Dioxin and Agent Orange

A. **Basic Science of Dioxin –**

1. A man-made family of chlorinated chemicals
2. They are *fat-soluble*
3. Tetrachlorodibenzo-p-dioxin – **TCDD** – the most toxic *and famous* has a biological half-life in humans ≥ 7 years.
4. *Shown to be a very Potent Carcinogen and Teratogen in animal tests.*

5. TCDD works by latching onto the *aryl hydrocarbon receptor (AhR)*.
6. Dose-Response Function not known with certainty
7. **Chloracne** and **an increased risk of cancer** are the best documented toxic effects.
8. Yushchenko – 100,000 picograms TCDD per gram of blood fat. RECORD – 144,000 pg TCDD/g blood fat

B. The Use of Agent Orange in Vietnam