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Surface Remediation Lawsuits: Scientific Theories on Trial

In many environmental pollution lawsuits, courts allow testimony by scientific experts to help the jury understand possible pollution pathways and the scope of contamination. Before the evidence may be submitted to the jury, however, the trial judge must determine whether the expert's scientific theory is valid. Under the most commonly applied standard for scientific validity, the Daubert Rule, scientific evidence is considered valid and admissible if it meets some combination of the following factors: testability, an acceptable error rate, subjection to peer review and general acceptance in the scientific community. In lawsuits involving alleged contamination to soil or water wells from oil wells (typically in mature fields that have had multiple operators), it is the plaintiff's burden to explain to the court a well-formulated and repeatable scientific theory for pollution. The defendant's expert has the option of either identifying the flaws in his opponent's theory, or presenting an alternative theory that exonerates his client. Any valid scientific explanation regarding pollution must consider the number of wells (potential point sources) involved, the timing of production from the wells relative to contamination, the effect of regional groundwater flow and waterflooding operations on pollution pathways and the permeability of geologic formations. In addition, the number of samples from the study area must be adequate to support extrapolation across the zone of contamination. Examples from the Permian Basin suggest that, if the plaintiff's expert does not adequately address these factors, the court will not permit expert testimony to reach the jury and will render judgment for the defendant.