Chapter 1

Expert Opinions in Environmental Litigation:  
A Daubert Update

David G. Ries  
Joseph R. Brendel  
Jerri A. Ryan  
Thorp Reed & Armstrong, LLP  
Pittsburgh, Pennsylvania

Synopsis

§ 1.01. Introduction .....................................................................................4

§ 1.02. The Daubert Trilogy .......................................................................5

§ 1.03. Amendment to Federal Rule of Evidence 702 ............................11

§ 1.04. Bases for Expert Opinions .............................................................14

§ 1.05. Application of Daubert in Federal Environmental Cases .............15
[1] — Expert Testimony Excluded ..............................................................16  
[a] — MSC, LLC v. Transmontaigne Inc. ...................................................16  
[b] — United States v. Cinergy Corp. .......................................................17  
[c] — Innis Arden Golf Club v. Pitney Bowes, Inc. ......................................18  
[d] — Finestone v. Florida Power & Light Company ....................................20  
[a] — Walnut Creek Manor, LLC v. Mayhew Center, LLC ..........................21  
[b] — City of Gary v. Shafer .....................................................................23  
[c] — Abrams v. Ciba Specialty Chemicals Corp. .......................................25  
[d] — Cannata v. Forest Preserve District of DuPage County .....................27  
[a] — City of St. Petersburg v. Total Containment, Inc. ................................28  
[b] — B.H v. Gold Fields Mining Corporation ..........................................30  
[c] — Chitayat v. Vanderbilt Associates ...................................................32
§ 1.01. Introduction.¹

Environmental litigation almost always involves expert opinions on scientific and technical issues, often with multiple experts, in different disciplines, for each party. Establishing admissibility of the opinions of a party’s experts and challenging opposing experts is often critical to the outcome of the case.

In 1993, the United States Supreme Court issued its landmark decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,² which made significant changes in the standards for admissibility of expert opinions in federal courts. The Supreme Court established (1) a gatekeeping requirement under which courts must screen expert opinions for reliability and exclude

---

¹ The authors acknowledge and thank Kerri L. Coriston and Brock E. McCandless of Thorp Reed & Armstrong, LLP for their contribution to these materials. Parts of these materials are adapted from David G. Ries and Matthew A. Jarrell, “Expert Opinions in Environmental Cases After *Daubert* and Amended Federal Rule 702,” 22 *Energy & Min. L. Inst.* ch. 13 (2002).

“junk science” and (2) a new, more flexible test to be used in this process. An amendment to Federal Rule of Evidence 702, effective in December 2000, codified Daubert’s general approach. These standards have now become better defined through two later Supreme Court decisions and their application by courts over the 17 years since Daubert, including a number of environmental cases.

§ 1.02. The Daubert Trilogy.


For years, the admissibility of expert opinions in federal courts was governed by Frye v. United States. Frye required that the scientific principle “must be sufficiently established to have gained general acceptance in the particular field to which it belongs.”

In 1975, over 50 years after the Frye decision, the Federal Rules of Evidence were adopted. Rule 702 governs the admissibility of expert opinions. The rule, in its original form, provided:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

The issue for the Supreme Court in Daubert was whether the Frye standard continued to apply under Rule 702.

3 Frye v. United States, 293 F. 1013 (D.C. Cir. 1923).
4 Frye involved a systolic blood pressure deception test, a predecessor to the polygraph. The court excluded the test because it had not yet gained general acceptance among physiological and psychological authorities.
5 Daubert involved claims that an antinausea drug taken by mothers during pregnancy caused birth defects. The evidence at issue included animal-cell studies, live-animal studies, chemical-structure analysis, and recalculation of previous epidemiological studies. The district court, relying on Frye, excluded the expert opinions and granted summary judgment. The Ninth Circuit affirmed. Daubert, 509 U.S. at 583-584, 113 S. Ct. at 2792.

In Daubert, the Supreme Court held that the Frye general acceptance standard was superseded by the adoption of the Federal Rules of Evidence. The Court (1) established a gatekeeping requirement under which courts must screen expert opinions for reliability and exclude “junk science” and (2) established a new, more flexible test to be used in this process.

There are accordingly two distinct requirements enunciated in Daubert: (1) the procedural gatekeeping function for trial courts and (2) the newly defined substantive analysis for determining admissibility of scientific evidence. The gatekeeping function requires a preliminary assessment by the district court of the proffered opinions before they are admitted:

Faced with a proffer of expert scientific testimony, then, the trial judge must determine at the outset, pursuant to Rule 104(a), whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue. This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.6

Fed. R. Evid. 104(a) governs determinations of preliminary questions of admissibility of evidence generally.

Admissibility is based on a two-step analysis in which the trial court determines (1) whether the proffered expert opinion reflects scientific knowledge, whether the findings are derived by the scientific method and whether the work amounts to good science (reliability), and (2) whether the proffered expert opinion is relevant to the task at hand (relevance).7 Fed. R. Evid. 702 governs admissibility of expert opinions. Fed. R. Evid. 401-403 govern relevance generally.

---

6 Daubert, 509 U.S. at 592-593, 113 S. Ct. at 2796.
For the first step in this admissibility analysis, the Supreme Court provided a list of nonexclusive factors, which it characterized as “general observations,” that a court should analyze in determining the reliability of scientific evidence:

(1) whether the scientific theory or technique “can be (and has been) tested”; 
(2) whether the scientific theory or technique “has been subjected to peer review and publication”; 
(3) “the known or potential rate of error”; 
(4) “the existence and maintenance of standards controlling the technique’s operation”; and 
(5) “general acceptance” in the “relevant scientific community.”

The Court pointed out “we do not presume to set out a definitive checklist or test.”

The Supreme Court noted that reviewing courts, in applying the Daubert analysis, must focus “solely on [the expert’s] principles and methodology, not on the conclusions that they generate.”

The Court addressed alternative concerns raised by the respective parties and amici that a replacement test for Frye may be too permissive or too restrictive. In response to concerns that it may be too permissive, leading to a “free-for-all” with “absurd and irrational pseudoscientific assertions,” the Court observed:

Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence. (citation omitted) Additionally, in the event the trial court concludes that the scintilla of evidence presented supporting a position is insufficient to allow a reasonable juror to conclude that the position

8 Daubert, 509 U.S. at 593-594; 113 S. Ct. at 2796-2797. 
9 Id. 
10 Daubert, 509 U.S. at 595, 113 S. Ct. at 2797.
more likely than not is true, the court remains free to direct a judgment, Fed. Rule Civ. Proc. 50(a), and likewise to grant summary judgment, Fed. Rule Civ. Proc. 56 (citation omitted).11

In response to concerns that a replacement test would be overly restrictive and would “sanction a stifling and repressive scientific orthodoxy” and would be “inimical to the search for truth,” the Supreme Court noted:

... there are important differences between the quest for truth in the courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. The scientific project is advanced by broad and wide-ranging consideration of a multitude of hypotheses, for those that are incorrect will eventually be shown to be so, and that in itself is an advance. Law, on the other hand, must resolve disputes finally and quickly. ... We recognize that, in practice, a gatekeeping role for the judge, no matter how flexible, inevitably on occasion will prevent the jury from learning of authentic insights and innovations. That, nevertheless, is the balance that is struck by Rules of Evidence designed not for the exhaustive search for cosmic understanding but for the particularized resolution of legal disputes.12

*Daubert* provides the test for admissibility — whether the proffered expert opinion gets “through the gate” into the courtroom so it can be considered by the fact finder, either a judge or jury. Once “inside the gate,” it is the fact finder’s role to determine the weight to be given to the expert opinion (credibility and persuasive force), after it has been tested at trial through cross-examination, contrary evidence, and responsive expert opinion.

The gatekeeping function is more important in jury trials than in bench trials because it is aimed at shielding juries from unreliable expert opinions. In nonjury cases, the final result should be the same whether the

---

11 *Daubert*, 509 U.S. at 596, 113 S. Ct. at 2798.
12 *Daubert*, 509 U.S. at 596-597, 113 S. Ct. at 2798-2799.
judge excludes an opinion through the gatekeeping function or rejects it as finder of facts.\footnote{In \textit{State of Oklahoma v. Tyson Foods, Inc.}, 565 F.3d 769 (10th Cir. 2009), the Tenth Circuit held that it was not an abuse of discretion, in a bench trial, for the district court to admit expert testimony and then apply a \textit{Daubert} analysis and find it to be unreliable in determining its weight.}

Significantly, the Supreme Court viewed the \textit{Frye} test as overly restrictive and replaced it with the more flexible \textit{Daubert} analysis. Because the new test is more flexible, a wider range of expert opinions should be admissible after \textit{Daubert} than was previously admissible under \textit{Frye}. However, because of the procedural gatekeeping function articulated by the Supreme Court, a \textit{Daubert} analysis has often resulted in exclusion of the proffered expert opinion.\footnote{In \textit{Daubert}, on remand, the district court again excluded the proffered evidence, this time based on the new reliability test. The Ninth Circuit affirmed. \textit{Daubert v. Merrell Dow Pharms., Inc.}, 43 F.3d 1311 (9th Cir. 1995)(on remand), \textit{cert. denied}, 516 U.S. 869, 116 S. Ct. 189 (1995).} In addition, some courts have incorrectly applied \textit{Daubert’s} “general observations” almost as a mandatory checklist for admissibility rather than as part of a flexible analysis.

\section*{[3] — Subsequent Supreme Court Decisions: \textit{General Electric} and \textit{Kumho Tire}.}

The Supreme Court has decided \textit{Daubert} admissibility standards twice since its original 1993 decision.\footnote{In a fourth case, \textit{Weisgram v. Marley Co.}, 528 U.S. 440, 120 S. Ct. 1011 (2000), the Supreme Court held that a court of appeals may direct entry of judgment as a matter of law where it determines that evidence was erroneously admitted and that the remaining, properly admitted evidence was insufficient to support a verdict. The evidence that the Eighth Circuit found to have been erroneously admitted was expert testimony that the court found to be inadmissible under \textit{Daubert}. The admissibility of the expert testimony was not an issue before the Supreme Court. This case, along with the trilogy discussed above, have sometimes been called the “\textit{Daubert} quartet.”} In \textit{General Electric Co. v. Joiner},\footnote{\textit{General Elec. Co. v. Joiner}, 522 U.S. 136, 118 S. Ct. 512 (1997).} the Court held that the test for appellate review of admissibility of expert
testimony is whether there was an abuse of discretion in admitting or excluding the expert testimony.\footnote{General Electric involved a claim that lung cancer was caused by the plaintiff’s exposure to transformer fluid containing polychlorinated biphenyls (PCBs) and their derivatives. The district court granted summary judgment after finding that plaintiff’s expert opinions “did not rise above ‘subjective belief or unsupported speculation.’” The Eleventh Circuit reversed based on “a particularly stringent standard of review” for exclusion of expert testimony. \textit{Id.}, 522 U.S. at 140, 118 S. Ct. at 515.}

Significantly, the Supreme Court also held that the gatekeeping function is not limited to evaluation of methodology, as it stated in \textit{Daubert}, but also properly includes a review of the connection between the methodology and the expert’s conclusions:

But conclusions and methodology are not entirely distinct from one another. . . . [N]othing in either \textit{Daubert} or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the \textit{ipse dixit} of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion offered.\footnote{General Electric, 522 U.S. at 146, 118 S. Ct. at 519.}

Most recently, in \textit{Kumho Tire Co., Ltd. v. Carmichael},\footnote{Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 119 S. Ct. 1167 (1999).} the Supreme Court held that the \textit{Daubert} analysis applies to all expert testimony based on “technical or other specialized knowledge” and is not limited to scientific opinions.\footnote{Kumho Tire involved the opinions of an engineering expert on tire failure analysis. The district court applied a \textit{Daubert} analysis and excluded the proffered opinions, finding that the plaintiff failed to establish the reliability of “the methodology employed by the expert in analyzing the data obtained in the visual inspection, and the scientific basis, if any, for such an analysis.” The Eleventh Circuit reversed, holding that \textit{Daubert} applied only to scientific opinions and that engineering opinions are beyond the scope of \textit{Daubert}. \textit{Id.}, 526 U.S. 141-147, 119 S. Ct. at 1171-1175.} With respect to technical opinions, however, the \textit{Daubert} factors have to be adjusted to fit the facts of the particular case, with the goal of testing the reliability of the proffered expert opinion.\footnote{Kumho Tire, 526 U.S. at 149-151, 119 S. Ct. at 1175.} The Court noted
that the Daubert factors are intended to be “helpful, not definitive” and that district courts have “considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable.”

The specific Daubert factors are to be applied by a district court “where they are reasonable measures of the reliability of expert testimony.”

§ 1.03. Amendment to Federal Rule of Evidence 702.

Rule 702 was amended, effective December 1, 2000, to codify the general approach adopted by the Supreme Court in Daubert. The original language of Rule 702 remains the same. Three specific requirements (in bold below) have been added to the rule:

Rule 702. Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

This amendment “affirms the trial court’s role as gatekeeper and provides some general standards the trial court must use to assess the reliability and helpfulness of proffered expert testimony.” It does not attempt to codify the specific Daubert factors enunciated by the Supreme Court as “general observations.”

The Advisory Committee Note to the 2000 Amendment to Rule 702 contains a list of additional factors which federal courts have applied in determining the reliability of expert opinions:

22 Kumho Tire, 526 U.S. at 151-152, 119 S. Ct. at 1175-1176.
23 Id.
24 Advisory Committee Note to 2000 Amendment to Rule 702.
(1) Whether experts are “proposing to testify about matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying.” Daubert v. Merrell Dow Pharms., Inc., 43 F.3d 1311, 1317 (9th Cir. 1995) (on remand).

(2) Whether the expert has unjustifiably extrapolated from an accepted premise to an unfounded conclusion. See General Elec. Co. v. Joiner, 522 U.S. 136, 146 (1997) (noting that in some cases a trial court “may conclude that there is simply too great an analytical gap between the data and the opinion proffered”).

(3) Whether the expert has adequately accounted for obvious alternative explanations. See Claar v. Burlington N.R.R., 29 F.3d 499 (9th Cir. 1994) (testimony excluded where the expert failed to consider other obvious causes for the plaintiff’s condition). Compare, Ambrosini v. Labarraque, 101 F.3d 129 (D.C. Cir. 1996) (the possibility of some uneliminated causes presents a question of weight, so long as the most obvious causes have been considered and reasonably ruled out by the expert).

(4) Whether that expert “is being as careful as he would be in his regular professional work outside his paid litigation consulting.” Sheehan v. Daily Racing Form, Inc., 104 F.3d 940, 942 (7th Cir. 1997), cert. denied, 521 U.S. 1104, 117 S. Ct. 2480 (1997). See Kumho Tire Co. v. Carmichael, 119 S. Ct. 1167, 1176 (1999) (Daubert requires the trial court assure itself that the expert “employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field”).

(5) Whether the field of expertise claimed by the expert is known to reach reliable results for the type of opinion the expert would give. See Kumho Tire Co. v. Carmichael, 119 S. Ct. 1167, 1175 (1999) (Daubert’s general acceptance factor does not “help show that an expert’s testimony is reliable where the discipline itself lacks reliability, as, for example, do theories grounded in any so-called
generally accepted principles of astrology or necromancy.”); Moore v. Ashland Chem., Inc., 151 F.3d 269 (5th Cir. 1998)(en banc), cert. denied, 526 U.S. 1064, 119 S. Ct. 1454 (1999)(clinical doctor was properly precluded from testifying to the toxicological cause of the plaintiff’s respiratory problem, where the opinion was not sufficiently grounded in scientific methodology); Sterling v. Velsicol Chem. Corp., 855 F.2d 1188 (6th Cir. 1988)(rejecting testimony based on “clinical ecology” as unfounded and unreliable).

Advisory Committee Note to 2000 Amendment to Rule 702.

Experience alone may qualify a witness to testify as an expert if reliability of the opinion is established. The Advisory Committee Note to the 2000 Amendment recognizes that an expert may be qualified based solely on experience:

Nothing in this amendment is intended to suggest that experience alone — or experience in conjunction with other knowledge, skill, training or education — may not provide a sufficient foundation for expert testimony. To the contrary, the text of Rule 702 expressly contemplates that an expert may be qualified on the basis of experience. In certain fields, experience is the predominant, if not sole, basis for a great deal of reliable expert testimony. See, e.g. United States v. Jones, 107 F.3d 1147 (6th Cir. 1997)(no abuse of discretion in admitting the testimony of a handwriting examiner who had years of practical experience and extensive training, and who explained his methodology in detail); Tassin v. Sears Roebuck, 946 F. Supp. 1241, 1248 (M.D. La. 1996)(design engineer’s testimony can be admissible when the expert’s opinions “are based on facts, a reasonable investigation, and traditional technical/mechanical expertise, and he provides a reasonable link between the information and procedures he uses and the conclusions he reaches”). See also Kumho Tire Co. v. Carmichael, 119 S. Ct. 1167, 1178 (1999)(stating that “no one denies that an expert might draw a conclusion from a set of observations based on extensive and specialized experience.”).
§ 1.04. Bases for Expert Opinions.

The Federal Rules of Evidence provide substantial flexibility on the bases on which an expert may base his or her opinions. Rule 703 provides:

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted. . . .

There are, however, limits to this flexibility, and courts have held that it may not be used to permit a testifying expert to serve as “a mouthpiece” for another nontestifying expert, particularly for an expert in a different discipline. This rule requires careful consideration in preparation of an environmental case.

An example of the application of this rule in an environmental case is *Dura Automotive Systems of Indiana, Inc. v. CTS Corp.*,25 a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)26 contribution case involving groundwater contamination. A company required by the U.S. Environmental Protection Agency (EPA) to clean up contamination near its plant sought reimbursement from the owner of a nearby plastics manufacturer. Based on *Daubert*, the district court excluded the testimony of the hydrogeologist concerning the results of hydraulic modeling with QuickFlow and SLAEM. The modeling was not done by the witness, but by professional groundwater modelers in his firm. The witness admitted that he was not an expert in hydraulic modeling. In affirming the exclusion of the opinions, the court of appeals noted that construction of the models was not a routine use of them, but was an “iterative process” and that the “soundness of the underlying judgment” of the modelers was at issue. It was, accordingly, proper to prohibit the hydrogeologist from testifying concerning the modeling.

---

25 *Dura Automotive Syss. of Indiana, Inc. v. CTS Corp.*, 285 F.3d 609 (7th Cir. 2002).
The court applied *Dura* in *Bowoto v. Chevrontexaco Corp.* in a case involving an expert opinion concerning a three-dimensional computer model of a barge. The court admitted the opinion, despite the fact that the witness did not personally create the model and had difficulty running it during his deposition. The court found that he had sufficient experience in the industry to render his opinion that the model was accurate and that there was no showing that he was “just parroting the opinion” of his technician.

Another case addressing the issue of bases for experts’ opinions is *St. Paul Fire and Marine Ins. Co. v. The Nolan Group, Inc.* Plaintiffs sought to exclude the opinions of a meteorologist concerning return intervals of storms of particular magnitudes because the meteorologist relied on information from a statistician. The court found that reliance on the statistician was permissible because it is the type of information normally relied upon by numerous experts, including meteorologists. The court also noted that there was no evidence that there was an original model or assistance beyond that which could have been provided by a computer.

**§ 1.05. Application of Daubert in Federal Environmental Cases.**

This section reviews recent federal court decisions in which the trial judge ruled on the admissibility of opinions of environmental experts in response to a *Daubert* challenge. These selected cases are not intended to present a comprehensive analysis of the application of the *Daubert* standard to environmental expert testimony in federal cases. Instead, the following case summaries demonstrate how federal judges have applied *Daubert* to admit, exclude and partially admit such proposed expert testimony. Accordingly, these representative case summaries highlight not only the

---

difficulties facing attorneys challenging the admissibility of environmental expert testimony, but also the degree to which attorneys and environmental experts must be prepared to respond to such challenges.31

As these cases demonstrate, federal courts have applied a straightforward Daubert analysis in environmental cases. The authors of ABA course materials in 2002 observed:

... There does not appear to be a trend of exclusion or admissibility of expert testimony in the environmental context. It appears as though courts simply apply the Daubert factors — there is no thread of commonality among the cases.

***

The effect of Daubert and its progeny on environmental criminal and civil cases is unclear. Daubert challenges in the environmental criminal arena are rare, primarily because prosecutors are wary of introducing questionable expert testimony. Although Daubert challenges in the civil context are more prevalent, no clear trend on the admissibility of expert testimony has arose.32

[a] — MSC, LLC v. Transmontaigne Inc.33

Landowner bought an action for property damage caused by a release of petroleum products onto plaintiff’s property from a pipeline facility


owned and operated by defendants. Plaintiff argued that even though its own environmental expert prepared a report acknowledging that the property could be effectively remediated in 10 years, the property would be permanently stigmatized from the contamination.

Plaintiff’s diminution in value expert, Craig Hull, opined that “[a]t the end of the ten year period, assuming successful completion of the clean-up, a slight (approximately 10 percent) residual stigma will remain.” Defendants moved to exclude the testimony of plaintiff’s expert, a commercial real estate broker, arguing that he was not qualified to render an expert opinion on diminution in value and that the methodology he employed was unreliable.

The court found that neither of the alternative methods employed by Hull was reliable. The first method consisted of asking five lenders which property they would finance — contaminated or uncontaminated property. The court noted that this was a loaded question rather than a neutral hypothesis. The second method assumed that the property would increase in value at a rate of 20 percent every year as it was being remediated, an approach that Hull acknowledged at the Daubert hearing was very speculative. Finding that Hull offered no facts or data supporting his conclusion that the property would be permanently stigmatized, the court excluded Mr. Hull’s testimony.

[b] — United States v. Cinergy Corp.34

The United States and several intervening states and environmental organizations sued Cinergy Corp., PSI Energy, Inc. and the Cincinnati Gas & Electric Company alleging violations of air pollution emissions limitations. Dr. Joel Schwartz submitted an expert report as well as a rebuttal report opining that increases in the particle concentrations in air that result from a utility’s failure to install pollution controls have a substantial effect on human health, and result in early death.

Dr. Schwartz admitted during his deposition testimony that he had not performed a quantitative risk assessment in order to determine

the contribution of emissions from Cinergy’s Wabash River Station to health impacts as opposed to other sources of air pollution. However, Dr. Schwartz then proceeded to estimate that the number of excess deaths per year caused by emissions from the Wabash River Station facility were in the 10s. Defendants moved to exclude Dr. Schwartz’ ballpark estimate testimony because it was not disclosed in his two (2) reports, it was not a mere elaboration of the opinions in his reports, and it was unreliable in the context in which it was given.

In addition to finding that Dr. Schwartz’ ballpark estimate was a new opinion, the court found that Dr. Schwartz’ “back of the envelope” analysis was devoid of pertinent references to scientific data. According to the court, Dr. Schwartz’ off-the-cuff analysis used too many assumptions and “round off to pick a round number” references to pass the Daubert reliability standard. Accordingly, the court granted the defendant’s motion to exclude Dr. Schwartz’ testimony.

[c] — Innis Arden Golf Club v. Pitney Bowes, Inc.35

Plaintiff, Innis Arden Golf Club (the Golf Club), remediated polychlorinated biphenyl (“PCB”) contamination on its property and then sued owners and operators of several nearby properties seeking cost recovery pursuant to CERCLA, as well as seeking damages and equitable relief under Connecticut environmental statutes and common law theories of nuisance and trespass.

Plaintiff’s expert witness, Dr. Swiatoslav Kaczmar, opined that the Golf Club’s remediation costs were caused by releases of PCBs from Pitney Bowes’ adjacent property. Dr. Kaczmar based his opinion on laboratory reports and chromatographs of soil samples from the Pitney Bowes and Gulf Club properties, the relative PCB concentrations on the two (2) properties, the “fingerprint” of the PCBs, as well as Dr. Kaczmar’s conclusion that the PCBs traveled downgradient from the Pitney Bowes property to the Golf Club property by way of stormwater runoff.

Pitney Bowes moved to exclude Dr. Kaczmar’s testimony as unreliable under *Daubert* because Dr. Kaczmar failed to account for obvious alternative explanations and his opinions could not be verified or tested. During his deposition testimony, Dr. Kaczmar acknowledged that he did not consider whether other nearby industrial properties were a source of the PCBs on the Golf Club property. His firm performed no testing on any properties other than Pitney Bowes’ property, even though his firm’s internal documents revealed that the Golf Club recognized that other properties could be responsible for the PCBs. The court found that Dr. Kaczmar’s methodology was not reliable because he failed to consider the possibility that PCBs released from some other property caused the Gulf Club’s remediation costs.

As an alternative basis for excluding Dr. Kaczmar’s testimony, the court found that his methods and opinions were not capable of being tested or verified. Although Dr. Kaczmar’s opinions were primarily based on chemical fingerprinting, Dr. Kaczmar conceded that he could not point to any particular sample, chromatograph or data pack that he relied upon in forming his opinions. He also conceded that the laboratory analyses generated incomplete data packages which made it difficult for a third party to replicate or verify the laboratory’s work. The court also noted that Dr. Kaczmar did not date-test the PCBs found in the sediment samples, notwithstanding the fact that the PCBs might have pre-dated Pitney Bowes’ occupancy of the property.36

The court also excluded the expert testimony of plaintiff’s second causation expert, Dr. Joseph Pignatello, on the same grounds because Dr. Pignatello reached his expert conclusions by relying on the same general methodology and underlying data as Dr. Kaczmar.

---

36 The court also noted that it previously had sanctioned the Golf Club for spoliation of evidence because Dr. Kaczmar’s firm had destroyed the soil samples and had failed to fully retain the analytical data and associated materials, thereby precluding evidence based on the soil samples the Golf Club took from its own property. In addition, the court noted that it previously had imposed sanctions based on the Golf Club’s conduct during discovery including its “pattern of belated production” and “progressive and wholly untimely supplementation of discovery.”
[d] — Finestone v. Florida Power & Light Co.\textsuperscript{37}

Plaintiffs brought an action to recover from alleged personal injuries related to the release of radioactive material from the Florida Power & Light Company nuclear power plant located on Hutchinson Island, near the town of Port St. Lucie, Florida. Plaintiffs alleged that they were exposed to sewage treatment plant sludge, which was allegedly disposed of by the defendant at a location that was not licensed to receive radioactive sludge (the “Dump Site”). In support of plaintiffs’ claim, plaintiffs sought of offer the testimony of Drs. Marvin Resnikoff and Stanley Waligora. These experts submitted reports that opine that the sludge dumped at the Dump Site contained certain levels of the radioactive isotope Co-60, specifically, 245 pico Curies per gram (“pCi/g”).

Dr. Waligora had a background in radiochemistry that included many years of working for the United States military monitoring the health effects of nuclear weapons maintenance at the Nevada test site and for the Public Health Service. Based on sampling, Dr. Waligora testified that 32 samples from the Dump Site contained measurable amounts of Co-60. Waligora, however, did not include samples where no Co-60 was found in his analysis. Totaled, Dr. Waligora concluded that there was 245.53 pCi/gm of radioactivity from Co-60 alone. Dr. Waligora believed that waste from a nuclear fission facility would have included additional radioactive isotopes and he used ratios contained in a pre-operation report to determine the same. Therefore, with respect to the total exposure rates, Dr. Waligora opined that a person living on the site would be exposed to 19,870 millirems per year (“mr/y”) and that 1,890 mr/y would be from Co-60.

Defendant sought to have the Resnikoff/Waligora report and testimony excluded on several grounds. First, defendant argued that while a total of 59 samples had been acquired from the Dump Site, Waligora only considered the 32 samples that he determined to have measurable amounts of Co-60 in his analysis. Defendant further argued that if the remaining samples were considered, the true average would be 22 pCi/gm. This figure, the defendant argued, was consistent with measurements indicated in the 1982

U.S. Nuclear Regulatory Commission Report, which put Co-60 levels at an average of 23 pCi/gm. Additionally, defendant contended that the experts’ calculation of radiation rates, which included other radioactive isotopes, incorrectly assumed that that spent fuel-rod waste-water was present in the sludge when, in reality, it was not. Moreover, defendant argued that Waligora improperly assumed that cesium, a more radioactive isotope, was present in the sludge when, in fact, sampling data only showed only Co-60.

The court agreed with the defendants and excluded the report and testimony from both experts. While the court found Waligora and Resnikoff qualified to testify — it determined that the reliability of their methodology had not been sufficiently shown. Specifically, the court noted that Waligora opined as to the presence and amount of radioactive isotopes based upon assumptions he made from a pre-operation report, which did not match the real world data acquired from the test samples. The court found that the experts’ report failed “the ‘test’ of their theory as their extrapolations cannot stand next to the actual data retrieved from the site and surrounding environment.” More importantly, the court found that the experts improperly failed to consider samples taken from the Dump Site where no Co-60 isotopes were found, as the inclusion of this data would have reduced the average radioactive concentration drastically. The court concluded that while “a court should meticulously focus on the expert’s principles and methodology, and not on the conclusions that they generate, the court can draw inferences about the methodology from the conclusions” and therefore “a district court may properly consider whether the expert’s methodology has been contrived to reach a particular result.” Therefore, the court concluded that the defendant’s motion to exclude the expert testimony of Resnikoff and Waligora must be granted.

   [a] — *Walnut Creek Manor, LLC v. Mayhew Center, LLC.*

Two adjacent landowners brought competing claims for CERCLA cost recovery and contribution, as well as common law liability theories,

---

38 Walnut Creek Manor, LLC v. Mayhew Center, LLC, 622 F. Supp. 2d 918 (N.D. Cal. 2009).
with respect to the source of soil and groundwater contaminated by tetrachloroethylene ("PCE"). The property owned by Walnut Creek Manor (WCM) previously was a walnut orchard, while the property owned by Mayhew Center (MC) was occupied by a variety of commercial and light industrial entities including one tenant, Etch-Tek, a manufacturer of printed circuit or wiring boards and plating. Although the owner of Etch-Tek testified that it did not use PCE or any solvents in its operations, PCE and other solvent use was prevalent in the printed circuit board manufacturing industry during Etch-Tek’s operations.

The California Regional Water Quality Control Board ordered both landowners to investigate the soil and groundwater at their respective properties. Walnut Creek Manor’s investigations, which included soil and groundwater testing on the Mayhew Center property, revealed that PCE concentrations in soil were much higher on the Mayhew Center property than on the neighboring Walnut Creek Manor property. Walnut Creek Manor’s environmental expert, Scott Warner, concluded that PCE migrated from the Mayhew property to the Walnut Creek property based upon the extensive soil testing which revealed that (1) PCE had only been detected in the Walnut Creek soil along the Mayhew property line, (2) PCE concentrations on the Mayhew property were far greater than those on the Walnut Creek property in adjacent areas, and (3) the Walnut Creek property was at a lower elevation than the Mayhew property, but PCE in soil at the Mayhew property existed at elevations at or even above the ground surface level of the Walnut Creek property.

Mayhew Center sought to exclude Mr. Warner’s expert report, arguing that Warner’s conclusions regarding MC as a possible source of PCE contamination were “premised on nothing more than his assumptions without any objectives scientific support.” Mayhew Center argued that Mr. Warner improperly used the process-of-elimination method to determine that the PCE present on the Walnut Creek property came from the Mayhew property. Mayhew Center also contended that Mr. Warner improperly excluded Walnut Creek Manor as a source of the contamination and he reached his conclusions without evidence that any of Mayhew’s former tenants used PCE.
EXPERT OPINIONS IN ENVIRONMENTAL LITIGATION  § 1.05

The court denied Mayhew Center’s motion to exclude Mr. Warner’s expert reports, finding that they were grounded in a defensible scientific methodology and based on extensive factual support. The court noted that Mr. Warner was not compelled to discuss or evaluate every speculative theory when describing his methodology, particularly where the subsurface data obtained and evaluated in conformance with professional standards did not support a PCE source from the Walnut Creek property. Based upon Mr. Warner’s extensive subsurface testing on both properties, and review of historical site information, the court concluded that Warner had demonstrated with scientifically sound methodology that a pathway existed for the movement of PCE from Mayhew Center to Walnut Creek Manor.

The court also denied Walnut Creek Manor’s motion to exclude the testimony of Mayhew Center’s expert, Jan Schutze, who opined that maintenance shops and storage areas formerly located near where PCE was discovered on Walnut Creek’s property could be the source of contamination which then migrated in groundwater from the Walnut Creek Manor property to the Mayhew Center property. The court noted that Mr. Schutze relied on the same facts as those relied upon by Mr. Warner and both experts used similar methodologies to reach different conclusions. Finding that both experts offered relevant and reliable opinions based upon sound scientific methodologies, the court concluded that neither expert should be excluded under Daubert and that a triable issue of fact existed as to the source of the PCE contamination.

[b] — City of Gary v. Shafer.39

The City of Gary sued Paul Shafer and his business, Paul’s Auto Yard, Inc., for cost recovery and contribution under CERCLA and other theories for the cost to investigate and remediate hazardous substances, primarily lead, at property formerly owned and operated as an automobile salvage and scrap yard by the defendants and now owned by the City of Gary. The testimony revealed that prior to defendants’ operation at the property from

approximately 1980 until 1991, a predecessor company, LeRoy’s Auto Yard, operated on the western parcel of the property from approximately 1950 until 1978. Defendants presented testimony that operations conducted by LeRoy’s Auto Yard, such as cracking automobile batteries, caused lead contamination on the western parcel of the property.

The city’s expert, Jay Vandeven, opined that the lead contamination on the property was consistent with historical wrecking yard operations conducted on the property. Based on the available records and review of aerial photographs, Vandeven concluded that the contamination on the eastern parcel was related to the defendants’ operations. Vandeven noted that there were no records available regarding LeRoy’s Auto Yard’s operations on the western parcel; however, the records available for the defendants’ operations indicated that operations on the western parcel were significantly greater during defendants’ ownership and operation. Therefore, Mr. Vandeven concluded that contamination on the western parcel was also largely the result of defendants’ operations.

Defendants moved to strike Mr. Vandeven’s expert report as unreliable because his conclusion that defendants contributed to the lead contamination was based solely upon a review of aerial photographs and counting automobiles. Defendants argued that Mr. Vandeven failed to conduct an evaluation and investigation that would result in a reliable opinion because he failed to identify a source of release (except for batteries), did not speak with any witnesses regarding the prior operations of LeRoy’s Auto Yard, failed to consider the impact of flooding by the Gary landfill, ignored testimony of former employees and eye witnesses that there were no signs of spills or releases during defendants’ operations, and ignored the fact that illegal dumping occurred on the property after defendants’ operations.

In evaluating defendants’ motion, the court noted that in addition to counting cars depicted in historic aerial photographs and considering the testimony of Mr. Shafer, Mr. Vandeven also reviewed prior environmental reports, analytical data, deposition testimony and defendants’ business records. The court noted that given Mr. Vandeven’s expertise in the field of environmental engineering, it was permissible for him to review the information provided to him by others in formulating his opinion.
In response to defendants’ argument that Mr. Vandeven failed to address and exclude the Gary landfill, LeRoy’s Auto Yard’s operations and illegal dumping as alternative sources of contamination, the court noted that, “An expert’s conclusion should not be excluded because he or she has failed to rule out every possible alternative cause.” (Citing Troutner v. Marten Transp., LTD40). According to the court, so long as an expert offers some explanation why the alternative causes could not be the sole cause, the expert’s failure to address alternative causes affects the weight the jury should give the evidence, not its admissibility. Finding that Mr. Vandeven adequately accounted for alternative explanations when concluding that defendants’ operations contributed to the lead contamination on the property, the court found that Mr. Vandeven’s opinion regarding causation was both sufficiently reliable and relevant to be admitted under Daubert.

[c] — Abrams v. Ciba Specialty Chemicals Corp.41

Plaintiffs were property owners who sued the defendants alleging that their homes had been contaminated by DDT emanating from the defendants’ nearby chemical manufacturing facility. Plaintiffs’ fate and transport expert, Dr. Robert Scates, issued a report opining that the contribution of the Ciba facility to DDT contamination in the plaintiffs’ homes was far greater than agricultural application or any other identifiable source. Based on his review of existing literature and historical data, he concluded that the historic use of DDT for forest pest control and mosquito control were of much smaller magnitude and shorter duration than either emissions from Ciba or agricultural use.

Dr. Scates supported his conclusion by calculating order of magnitude engineering estimates, based upon scientific literature as well as his review of Ciba documents, showing that DDT emissions from the Ciba facility far out-stripped total agricultural usage of DDT in the area where the plaintiffs’

homes were located. Dr. Scates also relied on interviews with farmers which indicated that the central locations for cotton farming were located between 17 and 29 miles away from the plaintiffs’ homes. He also plotted observed DDT concentrations against a home’s year of construction to demonstrate that concentrations fell drastically for homes constructed after Ciba’s DDT’s production ceased, but before agricultural usage stopped, in order to support the conclusion that agricultural use could not explain the observed patterns.

Defendants sought to exclude Dr. Scates’ opinions upon the grounds that he was not qualified to offer those opinions and that his methodology lacked scientific liability. In support of its contention that Dr. Scates was unqualified, the defendants noted that Dr. Scates’ business worked exclusively on litigation projects involving the plaintiffs’ primary law firm and that his sole source of consulting income was his work for the law firm. The court, however, found that Dr. Scates had both the educational background and experience working as a process and research engineer for large companies, with a focus on characterization of industrial emissions sources and transports of chemicals in the environment, in order to qualify as an expert witness. Observing that Dr. Scates’ close working relationship with plaintiffs’ law firm provided an argument about bias or credibility rather than qualification, the court noted that defendants were free to cross-examine Dr. Scates about his motives and independence, inquiries which went to Dr. Scates’ credibility, but not to his qualification to testify in the first instance.

The court also found that Dr. Scates’ methodology satisfied the Daubert reliability test. Rejecting the defendants’ assertion that Dr. Scates’ opinions were mere statements of his conclusions with no explanation of how the data supported them, the court noted that Dr. Scates’ reports analyzed an array of evidence in reaching his conclusion that the Ciba plant was the most likely source of the DDT.

The defendants criticized Dr. Scates’ failure to quantify the amount of DDT emanating from Ciba’s plant pursuant to specific pathways, or the amount of DDT that reached each plaintiff’s home from the Ciba plant. Although Dr. Scates did not conduct air dispersion modeling to quantify the travel of DDT along particular pathways to particular locations, the
court noted that *Daubert* does not inflexibly demand quantification of expert opinions in order for them to be admissible. According to the court, the defendants’ reliability objection was defective because they failed to explain why quantification of particular pathways is a mandatory, lock-down prerequisite for any valid environmental fate and transport analysis. The court further noted that while quantification of DDT particles on particular pathways was one way to establish causation, it was not the only means of demonstrating that the Ciba plant caused plaintiffs’ homes to be contaminated.

Defendants also argued that Dr. Scates’ materials balance calculations relating to DDT emissions from the Ciba plant were hinged on assumptions that lacked any basis in science or engineering, so as to render them unreliable. Noting that Dr. Scates admitted that his materials balance calculations were intended only as approximate, order-of-magnitude estimates of total DDT emissions from the Ciba plant, the court concluded that the fact that those assumptions were admittedly imprecise and subject to challenge on cross-examination did not render Dr. Scates’ entire order of magnitude opinion testimony unreliable. According to the court, “The proponent of the testimony does not have the burden of proving that it is scientifically correct, but that by a preponderance of the evidence, it is reliable.” (Citing *Alison v. McGhan Medical Corp.*).

[d] — *Cannata v. Forest Preserve District of DuPage County*.

Plaintiffs, who are all residents of Wayne Township, brought an action against defendants alleging that defendants mishandled the storage and disposal of toxic waste from a landfill. Specifically, tests of the groundwater from residential wells in Wayne Township revealed the presence of dangerous carcinogens. Plaintiffs’ claims arose under CERCLA, the Resource Conservation and Recovery Act (RCRA) and other state laws. In support of their claims, plaintiffs designated Dr. Neil D. Williams as their expert with respect to groundwater flow and the source of the contamination.

---

42  *Alison v. McGhan Med. Corp.*, 184 F.3d 1300, 1312 (11th Cir. 1999).
Dr. Williams opined that the detection of contaminants in the plaintiffs’ wells was consistent with the timing of a release of waste from the landfill and that based on the presence of eight specific attributes, it was his opinion that the landfill was the primary source of contamination of the plaintiffs’ wells.

Defendants sought to bar Dr. Williams from testifying as to the direction of the groundwater flow, groundwater travel time, and the source of the contamination on the basis that Dr. Williams utilized faulty methods to interpret the data. Defendants challenged Dr. Williams’s opinions on multiple fronts. Most notably, defendants contended that Dr. Williams’s testimony was unreliable because the eight factors that he used to determine the source of contamination do not constitute an established “test” in the industry and thus cannot be plugged into an equation to yield a quantifiable result.

The court rejected defendants’ arguments and found that while the factors that Dr. Williams relied upon did not set forth a test that would produce a quantifiable result, the factors were based on his experience in addition to several textbooks and guidance documents. Furthermore, the court noted that one of the defendants’ own experts relied on similar factors, but arrived at a different result. As the defendants did not contend the eight factors were irrelevant and as the defendants could not point to an all-encompassing checklist or test for identifying contamination sources, the court determined that defendants were objecting to the fact that Dr. Williams arrived at different conclusion than they had. Therefore, the court admitted the testimony and determined that the jury should decide which expert was more credible.

[a] — City of St. Petersburg v. Total Containment, Inc.44

The plaintiffs purchased or otherwise used defendants’ thermoplastic flexible piping (“FlexPipe”) at their fuel dispensing facilities and retail

gasoline stations. The plaintiffs alleged that the failure of the FlexPipe resulted in damage to the plaintiffs’ fuel containment, conveyance and delivery systems, and also contaminated the surrounding environment, requiring costly remediation. Defendants moved to exclude the expert opinions of six of plaintiffs’ experts while plaintiffs sought to exclude the expert opinions of two of defendants’ experts.

Defendants objected to the expert testimony of Thomas Schruben on the alleged “root cause” or failure mechanism of FlexPipe. In support of his proposed expert testimony, plaintiffs noted that Mr. Schruben had a degree in civil engineering (with an emphasis in environmental engineering) and his 27-year professional career had focused on underground storage tanks (UST). Part of Mr. Schruben’s experience was as an environmental engineer for EPA, where he inspected USTs, investigated the causes of leaks, and participated in developing national standards on release prevention, site assessment and environmental corrective action. He previously had been accepted in one court as an expert on underground storage tank equipment product defects and failure related to piping used in USTs.

The court found that Mr. Schruben was qualified to testify about the regulation of underground storage tanks, the development and implementation of standards applicable to underground storage tanks, and the investigation of claims arising from leaks of underground storage tanks, as well as the design, manufacturer, testing, and materials selection of FlexPipe from an engineering and regulatory perspective. However, the court concluded that Mr. Schruben was not qualified to opine about the root cause of the alleged failures of FlexPipes. The court noted that Mr. Schruben did not have the requisite background or training to render opinions about the molecular properties of polymers and their chemical compatibilities with fuel. The court agreed with the defendants that Mr. Schruben had merely adopted and repeated opinions about fuel compatibility and permeation offered by other experts. Accordingly, the court found “too large an analytical gap between the facts and data upon which he relied and his opinions about permeation and the root cause of FlexPipe failure.” (Citing General Elec.45)

Similarly, the court denied in part and granted in part plaintiffs’ motion to preclude the testimony of two of defendants’ expert witnesses. Defendants’ expert, Jeff Winter, has a degree in chemical engineering and was employed for 17 years by one of the defendants where he participated and/or directed hundreds of tests regarding flexible hose products. He also participated in the construction and operation of a test service station in which defendants’ hose products were installed, maintained, tested and evaluated. Based upon his education, training and experience, the court found that Mr. Winter was qualified to opine about the hose design, testing, manufacture, and proper installation and maintenance of the defendants’ flexible piping products. However, because Mr. Winter did not visit plaintiffs’ service stations, the court ruled that Mr. Winter could not offer any opinion about what role operator misuse/abuse played in the damages plaintiffs suffered.

Plaintiffs also moved to exclude the testimony of Thomas Martin, whom defendants intended to call as an expert in the fields of hose development and testing, as well as proper installation and maintenance of the defendants’ hose products. Like Mr. Winter, Mr. Martin had a long professional career at one of the defendants which included testing and inspection of hose products at service stations in the field for proper maintenance and installation. He participated in the installation of the flexible piping at issue in the case at a test service station and he oversaw maintenance of that hose for one and a half years. Although Mr. Martin did not have a college degree, the court found, based on his training and 27 years of experience, that he was qualified to give an expert opinion about the hose design, testing, manufacture and proper installation and maintenance of the flexible tubing. However, as with Mr. Winter, the court concluded that Mr. Martin could not offer an opinion about what role operator misuse/abuse played in the damages plaintiffs suffered, except to the extent that he personally observed plaintiffs’ sites and the damaged product.

[b] — B.H v. Gold Fields Mining Corporation.46

Residents living in areas where lead and zinc were being mined brought an action against the companies involved in the mining

---

and related operations, alleging that the defendants’ actions caused ground and air contamination, which in turn caused lead poisoning. Defendants moved to exclude two of plaintiffs’ expert witnesses, including David Sullivan (Sullivan), a meteorology expert.

Sullivan provided three opinions in his expert report. First, he opined that the defendants’ chat piles and tailings ponds were “the only source that could have produced the observed lead contamination of the surface soils in and around Picher, Oklahoma.” Second, Sullivan conducted air dispersion modeling using a particular equation. Finally, he compared modeled emission rates from several experts and compared them to the lead contamination levels in the present case. Defendants challenged Sullivan on the basis that he utilized flawed methodology in calculating the climate, or “C” factor, in a model used to calculate the level of lead emitted in the air from the defendants’ chat piles and tailings, which was part of the equation Sullivan relied upon in his second opinion. The “C” value is a reduction factor that accounts for climates that are less conducive to wind erosion. Defendants argued that Sullivan set “C” equal to 8.5 instead of .085, which caused Sullivan to overestimate the annual emission rate by a factor of 100. Sullivan acknowledged that he deviated from the normal application of the “C” value, but contended that this deviation was necessary to accurately determine the emissions on a local scale as opposed to a regional scale. Plaintiffs presented no evidence that Sullivan’s theory concerning the calculation of a “C” value had been peer-reviewed or developed independent of litigation.

The court rejected the plaintiffs’ justification for the discrepancy in the “C” value, and found that Sullivan’s opinion regarding the same to be unreliable. The court specifically noted that the plaintiffs were attempting to create an after-the-fact justification for Sullivan’s theory and that there was no support in Sullivan’s expert report or in peer-reviewed literature to support Sullivan’s method of determining a “C” factor. The court stated that it “would not be fulfilling its duty as gatekeeper if it permitted the introduction of a novel scientific methodology based solely on the assurances of the expert himself.”
Ultimately, the court found Sullivan’s first and third opinions to be reliable and therefore only prohibited him from offering testimony as to his second opinion, which based on his application of the unreliable equation.

[c] — *Chitayat v. Vanderbilt Associates.* 47

Plaintiff brought an action pursuant to CERCLA seeking to recover costs incurred in the remediation of PCE and other contaminants at a property located in an industrial park (the “Oser Site”). This matter also involves a second property located within the same industrial park that is owned by the Pall Corporation (Pall), a third-party defendant in the action (the “Pall Site”). The Pall Site is approximately 200-300 feet southwest hydrogeologically and immediately upgradient of the Oser Site.

In connection with plaintiff’s claim, plaintiff sought to offer the testimony of Dr. Thomas E. Pease, PE, a professional engineer in the State of New York and the Commonwealth of Pennsylvania who had over 30 years experience of evaluating environmental conditions through science and engineering studies, assessing environmental impacts and mitigating impacts of contaminants in soil, sediment, surface and groundwater. Dr. Pease explained in his expert report that he reviewed an investigative report prepared for the Pall Site that detailed a spill of waste solvents in 1988. The report showed a spill of 60 percent toluene, 35 percent methacrylic acid, five percent carbon tetrachloride, and trace methylene chloride. Dr. Pease opined that 3,500 gallons of the waste solvent were discharged into the environment as a result of the 1988 spill. Moreover, Dr. Pease opined that Pall was partly responsible for the contamination at the Oser Site and that overall defendant, Vanderbilt Associates, was 95 percent responsible for the contamination at the Oser Site and that Pall was five percent responsible. Additionally, Dr. Pease opined that the costs that the plaintiff incurred in response and remediation of the Oser Site were consistent with the National

Contingency Plan (NCP) and industry standards and that the costs “meet the conditions of NCP for cost recovery and should be reimbursed.”

Pall filed a motion in limine to preclude the testimony of Dr. Pease on the grounds that his opinions were not based on sufficient facts or data and that they were largely unreliable. With respect to Dr. Pease’s opinion regarding the 3,500 gallons of waste discharged from the 1988 spill at the Pall Site, Pall contended that Dr. Pease’s opinion lacked any hard evidence. Pall submitted that Dr. Pease based his opinion solely on his experience at spill sites and, therefore, on complete speculation. Pall pointed out that despite the lack of any evidence that showed the presence of the three “signature” chemicals associated with the Pall spill in the groundwater data at the Oser Site, Dr. Pease opined that Pall was responsible for the contamination. Finally, Pall argued that Dr. Pease’s opinion that the costs allegedly incurred by the plaintiff were consistent with the National Contingency Plan was not based on sufficient facts or data and was therefore unreliable. To support this assertion, Pall pointed specifically to the fact that Dr. Pease only reviewed estimates and projections and did not review any detailed information regarding the actual expenditures for work actually conducted at the site. Finally, Pall argued that Dr. Pease’s opinion that the plaintiff should be reimbursed for specific costs related to the remediation was flawed because in certain cases a third-party and not the plaintiff paid for the remediation efforts.

The court granted Pall’s motion in limine in part and denied it in part. The court determined that Dr. Pease’s testimony relating to the costs being National Contingency Plan compliant should be excluded. The court found there to be no evidence that Dr. Pease examined anything other than estimates and projections. Without having reviewed any detailed information regarding actual expenditures for specific work performed, the court determined that Dr. Pease’s opinion was based solely on speculation and conjecture and excluded the same. Additionally, the court excluded any testimony from Dr. Pease that costs for services not paid for by the plaintiff should be reimbursed.

The court, however, found there to be sufficient support for Dr. Pease’s opinion that Pall discharged 3,500 gallons of waste solvents into the
environment. The court reasoned that none of the parties disputed the spill and that the records presented could support the inference that there was some degree of spillage before Pall started tracking the same. Combined with Dr. Pease’s experience and testimony that 90 percent of the time the actual amount of the material spilled is more than what can accurately be accounted for immediately after the spill occurs, provided sufficient support for Dr. Pease’s opinion. The court therefore permitted this testimony.

Finally, the court ruled that the absence of the “signature” contaminants (identified above as part of the Pall spill in 1988) from the groundwater data at the Oser site did not warrant the exclusion of Dr. Pease’s testimony. The court noted that Dr. Pease’s deposition revealed testimony that different chemicals impact the groundwater to different extents and that different bacteria breakdown different contaminants. Moreover, Dr. Pease stated that each of the contaminants at issue has its own propensity for absorption on soils and degradation. The court found this to be sufficient foundation for the opinion and determined that the matter was best left for cross-examination.

§ 1.06. Application of Frye and Daubert in the State Courts.

After the Supreme Court’s decision in Daubert, state courts have faced the issue of whether to adopt Daubert or retain their established tests for admissibility of expert opinions. Some states have adopted all, or a portion of, the Daubert test, while others have continued to employ the Frye test, either because they have declined to adopt any portion of Daubert or have not decided the issue. Still other states have their own tests which differ from both Daubert and Frye. This section reviews the standards in selected states.48


[a] — Kentucky Courts.

For its part, Kentucky has adopted the holdings of *Daubert* and *Kumho*, as well as *Joiner’s* “abuse of discretion” review standard. To date, however, Kentucky has not openly adopted *Joiner’s* “strict scrutiny” of the expert’s reasoning process. In *Mitchell v. Commonwealth of Kentucky*,\(^4^9\) the Kentucky Supreme Court adopted the *Daubert* standard and affirmed the admissibility of expert testimony offered regarding forensic DNA evidence. According to the court, the lower court properly had conducted a *Daubert* hearing where the proffered evidence was fully examined.\(^5^0\)

In *Cantrell v. Ashland Oil, Inc.*,\(^5^1\) the plaintiffs sued the defendant, alleging contamination of the plaintiffs’ property based on an oil production method, which allegedly caused radioactive material below ground to be carried to the surface. The Kentucky Supreme Court affirmed the trial court’s exclusion of certain of the plaintiffs’ proposed expert testimony regarding the harm to the plaintiffs’ properties. According to the court, the methodology employed by the experts measured future harm and not present harm, as required for recovery, and therefore was not reliable testimony under *Daubert*.

[b] — Ohio Courts.

Like Kentucky, Ohio has adopted the holdings of *Daubert* and *Kumho*, as well as *Joiner’s* “abuse of discretion” review standard, but has not openly adopted *Joiner’s* “strict scrutiny” of the expert’s reasoning process.

---

\(^4^9\) Mitchell v. Commonwealth of Kentucky, 908 S.W.2d 100, 101-02 (Ky. 1995), overruled in part by Fugate v. Commonwealth of Kentucky, 993 S.W.2d 931, 935-36 (Ky. 1999) (Kentucky Supreme Court subsequently holding, because of widespread recognition of DNA evidence as valid and scientifically reliable, such evidence now admissible per se and not subject to case by case analysis called for in *Mitchell*).

\(^5^0\) See also Toyota Motor Corp. v. Gregory, 136 S.W.3d 35 (Ky. 2004) (Kentucky Supreme Court reaffirms its adoption of *Daubert*).

\(^5^1\) Cantrell v. Ashland Oil, Inc., 2010 WL 1006391, *1 (Ky. 2010).
In *Miller v. Bike Athletic Co.*,\(^{52}\) the court held that an expert opinion, offered to show that a high school football player would not have sustained paralyzing injuries during a game if the helmet lining had been properly inflated, was admissible under the *Daubert* standard, despite that the testing forming the basis of the opinion did not duplicate the conditions at the time of the accident. In so holding, the court stated that *Daubert*’s reliability requirement should not be used to exclude all evidence of questionable reliability. According to the court, reliability turns on whether the expert’s technique or principle is sufficiently reliable so that it will aid a jury in reaching accurate results.

In *Terry v. Caputo*,\(^ {53}\) a case involving exposure to mold, the court affirmed the exclusion of the plaintiff’s proposed expert on the issue of the specific causation of the plaintiff’s injuries. According to the court, the proposed expert conducted an invalid differential diagnosis that did not meet the reliability requirements under *Daubert*.

[c] — **West Virginia Courts.**

West Virginia’s state rules of evidence are based on the federal rules of evidence, which may have lead to West Virginia’s decision to become an early adopter *Daubert*, in 1993, in *Wilt v. Buracker*.\(^ {54}\) West Virginia, however, has not yet adopted the holdings of *Joiner* and *Kuhmo*. In *Wilt*, the court held that expert testimony, offered to calculate damages for loss of enjoyment of life, was inadmissible under the *Daubert* standard. The underlying studies used in the expert’s methodology were not admitted into evidence and were not adequately explained; thus the court found the methodology to be unreliable. Moreover, the expert’s calculation was based on studies that did not use a methodology designed to calculate loss of enjoyment of life.

---


In *In re Flood Litigation Coal River Watershed*, the West Virginia Supreme Court applied the standard set forth in *Daubert/Wilt* and reversed the trial court’s exclusion of the testimony of the plaintiffs’ proffered environmental engineer regarding how land disturbance affects the flow of surface water. According to the court, the plaintiffs’ testifying expert had extensive training, education, and professional experience and expertise. Moreover, the court found that the expert’s use of computer models was a standard methodology used in the environmental engineering profession.

[a] — *Pennsylvania Courts.*

In 1998, Pennsylvania adopted Rule of Evidence 702 (“Testimony of experts”), which nearly mirrors Federal Rule of 702, but also contains language needed to make the rule consistent with Pennsylvania law. The Comment to Pennsylvania’s Rule 702 also expressly states that Pennsylvania’s “[a]doption of Pa. R.E. 702 does not alter Pennsylvania’s adoption of the standard in *Frye*. . . .”

In the 2003 case of *Grady v. Frito-Lay, Inc.*, the Pennsylvania Supreme Court held that expert testimony, involving the cause of a personal injury, was inadmissible. The court further held that a scientific expert’s methodology must enjoy general acceptance among the scientific community, thereby retaining the *Frye* test and again declining to adopt *Daubert*. Because the plaintiffs could not produce evidence to suggest that their expert’s methodology was generally accepted in the field of food science, the testimony was found to be not sufficiently reliable for admissibility.

---

56 Pa. R. Evid. 702, Comment.  
57 *Id.*  
59 *See also* Trach v. J. Fellin and Thrift Drug/Eckerd Store, 817 A.2d 1102 (Pa. Super. 2003), appeal denied, 847 A.2d 1288 (Pa. 2003)(clarifying that *Frye’s* “general acceptance” standard is to be applied to expert’s methodologies, but not to conclusions).
In Groce v. Dep’t of Env’tl. Protection,60 a case involving the approval of the Pennsylvania Department of Environmental Protection of a plan to build an electric generating power plant, the court upheld the admissibility of expert testimony regarding air modeling. Applying Frye, the court determined that the methodology of the air modeling program was generally accepted and, in particular, was accepted by the U.S. Environmental Protection Agency.


In Donaldson v. Cent. Ill. Pub. Serv. Co.,61 the court held that expert testimony regarding carcinogens released from environmental cleanup site was admissible to show the cause of injuries to neighborhood children. Under the Frye standard, as adopted in Illinois, once a court determines that a technique or methodology is generally accepted, the court is not to further inquire into whether the opinion is also reliable. Here, the expert’s testimony was based on an extrapolation method that was commonly used by scientists when the area of inquiry is new.

In Bernardoni v. Industrial Commission,62 the court held that multiple chemical sensitivity (MCS) is not a generally accepted syndrome in the medical community and, therefore, affirmed the exclusion of the proposed testimony of the plaintiff’s expert in environmental medicine. According to the court, the relevant medical literature indicated that the larger medical community did not recognize MCS. The proposed testimony, therefore, did not meet Frye’s general acceptance standard.

61 Donaldson v. Cent. Ill. Pub. Serv. Co., 767 N.E.2d 314, 323-30 (Ill. 2002), overruled on other grounds by In re Commitment of Simons, 821 N.E.2d 1184 (Ill. 2004)(reversing Donaldson with respect to standard of appellate review of lower court’s decisions regarding expert testimony admissibility; whereas Donaldson called for review according to abuse of discretion standard, Simons held such decisions should be subject to de novo review).

In People v. Wernick, the court held that the proposed expert testimony regarding a new psychological syndrome was inadmissible under the Frye standard, finding that psychological syndrome had not been sufficiently established to have gained general acceptance in the psychological field.

Citing People v. Wesley, in the 1998 case of Collins v. Welch, the New York trial court stated that “[t]he Frye rule still reigns in New York” and excluded expert testimony regarding the plaintiff’s claim of multiple chemical sensitivity caused by exposure to air contaminants. The proposed expert conceded that there was no diagnostic test for multiple chemical sensitivity and that there were no studies that identify a cause of MCS. The expert also conceded that multiple chemical sensitivity had not achieved general acceptability within the field of medicine, thereby failing Frye’s general acceptability standard.

Today, New York remains a Frye state, although in the 2006 case of Parker v. Mobil Oil Corp., involving a gas station attendant’s claims that he developed leukemia from benzene exposure, the New York Court of Appeals excluded the plaintiff’s proffered expert testimony, noting its lack of reliability and citing cases otherwise discussing Daubert-based reasoning, signaling a possible shift to a Daubert-type of analysis.


[a] — Virginia Courts.

Virginia is one the states viewed as having developed its own test. In Spencer v. Commonwealth, the Virginia Supreme Court declined to follow Frye, but did not expressly adopt the Daubert standard, in a case involving expert testimony regarding DNA evidence. According to the court, when

64 People v. Wesley, 83 N.Y.2d 417, 422 (1994).
expert testimony is offered, the court must make a threshold finding that the
evidence is either reliable or generally accepted. The court also noted that
in making its finding, a trial court is granted wide discretion to determine
whether the evidence is of such a character that the jury may safely be left
to determine credibility for itself.

In *Norfolk Southern Railway Co. v. Rogers*, the Virginia Supreme
Court reversed a lower court's decision and found that the testimony given by
the plaintiff's expert on the issue of the plaintiff's exposure to silica did not
have an adequate factual foundation and, accordingly, was inadmissible.

**§ 1.07. The Effect of *Daubert*.**

While *Daubert* was intended to make admissibility of expert testimony
more flexible, it is often better known for excluding unreliable expert
opinions as “junk science.” This is the case because district courts have
been giving proffered expert testimony closer scrutiny under the gatekeeping
procedure that *Daubert* established.

The Advisory Committee Note to the 2000 Amendment to Federal Rule
of Civil Procedure 702 states that acceptance of expert opinions, rather than
exclusion, has generally been the result in cases applying *Daubert*:

A review of the caselaw after *Daubert* shows that the rejection of
expert testimony is the exception rather than the rule. *Daubert* did
not work a “seachange over federal evidence law,” and “the trial
court’s role as gatekeeper is not intended to serve as a replacement
for the adversary system.” *United States v. 14.38 Acres of Land
Situated in Leflore County, Mississippi*, 80 F.3d 1074, 1078 (5th
Cir. 1996).

In “Changes in Standards for Admitting Expert Evidence in Federal
Civil Cases Since the *Daubert* Decisions,” published in 2001 by the
RAND Institute for Civil Justice, the authors stated that their analysis,

---

. . . provides strong evidence that the Daubert opinion changed how federal district court judges assess expert evidence in civil cases. It appears that judges are indeed doing what they were directed to do by the Supreme Court: they are increasingly acting as gatekeepers for reliability and relevance, they are examining the methods and reasoning underlying the evidence, and they appear to be employing general acceptance as only one of many factors that enter into their reliability assessments. The rise that took place in both the proportion of evidence found unreliable and the proportion of challenged evidence excluded suggests that the standards for admitting evidence have tightened. The subsequent fall in these two proportions suggests that parties proposing evidence — and perhaps parties challenging evidence as well — have responded to the change in standards.70

In 2002, the authors of “Federal Judicial Center, Judge and Attorney Experiences, Practices, and Concerns Regarding Expert Testimony in Federal Civil Trials”71 analyzed the results of three surveys (one of federal judges in 1991, one of federal judges in 1998, and one of attorneys in 1999) to determine whether Daubert changed the “beliefs and practices concerning expert testimony.”72 The authors determined that the survey results “suggest recent Supreme Court decisions have influenced the practices of federal judges and attorneys with respect to expert testimony in civil cases.”73 According to the surveys, “[a] third of judges claimed to admit evidence less often than they did before Daubert, and well over half of the attorneys surveyed reported the same trend in judge’s rulings.”74 The 1998 survey of federal judges indicated that in those cases in which the judges ruled on expert admissibility issues, the judges permitted 59 percent of the cases to proceed to trial without limitation, while the 1991 survey indicated that

70 Id. at xiii.
72 Id. at 1.
73 Id. at 23.
74 Id.
the judges permitted 75 percent of those cases to proceed to trial without limitation.75

In an article entitled, “Does Frye or Daubert Matter? A Study of Scientific Admissibility Standards,” the authors concluded that in federal courts, “[t]he resulting effects of Daubert have been decidedly pro-defendant.”76 Further, in studying whether a state’s adoption of Frye or Daubert had any practical impact on how state courts handle scientific evidence, the authors reported, that “[u]sing both a preliminary study of Connecticut and the EDNY, as well as a national study of all available and relevant states, [they] found no evidence that Frye or Daubert makes a difference.”77

A 2005 article, “What Has a Decade of Daubert Wrought?,” concludes that the impact of Daubert is not yet clear and that measuring its impact has been difficult:78

What conclusions can be drawn about the general effects Daubert has had on civil litigation? It needs to be noted that serious research on the effects of Daubert has just begun and that it is difficult to do. Although cases in which judges exclude the plaintiffs’ experts and grant summary judgment can generally be found because the trial court must write an opinion explaining its reasoning if it is to avoid reversal for an “abuse of discretion,” many cases in which plaintiffs win a Daubert hearing undoubtedly settle without being counted and disappear from sight, or they go to trial and verdict without an opinion being written. The high visibility of decisions that exclude plaintiffs’ experts and grant summary judgment may make the law appear more settled than it actually is.

***

75 Id.
77 Id.
Has the trilogy led to better expert proof? That, after all, was the rationale for the Supreme Court’s opinions. Nobody at this point has the data to support such a conclusion, because no one has as yet systematically compared proffered expert testimony that is excluded with that which is admitted.

Studies examining Daubert’s effect continue and a study currently is being conducted through Harvard University’s John F. Kennedy School of Government, which will examine,

. . . fifteen years of Daubert’s implementation to ascertain how judges, attorneys, and expert witnesses have construed the mandate that trial judges should “think like scientists,” and how these interpretations have affected the production (or non-production) of expert evidence.

§ 1.08. **Daubert in Administrative Proceedings.**

Since the Supreme Court’s decision in Daubert, there has been substantial discussion about whether Daubert does apply or should apply in administrative proceedings. The conclusion reached on this point depends party on the role one believes administrative agencies should play. For instance, if the overriding purpose of administrative agencies and regulations is to be proactive in protecting the public from perceived harms, which

---

79 Sheila Jasanoff, “Evidence Observed: Daubert’s Impact on Science and Justice,” project funded by the National Science Foundation’s Division of Social and Economic Sciences and conducted under the auspices of the Program on Science, Technology and Society, John F. Kennedy School of Government, Harvard University.

80 Id., www.hks.harvard.edu/sts/research/projects.html.

necessarily entails erring on the side of caution, policy considerations likely weigh against applying Daubert standards in administrative proceedings as their application could prevent agencies from acting on what otherwise could be considered “unreliable” evidence. On the other hand, if agencies are not prohibited from acting on unreliable evidence, then arguably unnecessary and overly restrictive regulations could be adopted, requiring the expenditure of substantial monetary sums and costly compliance efforts.

The Federal Rules of Evidence, including Rule 702, do not apply in regulatory proceedings, although courts have stated that the “spirit of Daubert” should apply. As the authors of “Are Regulatory Findings Admissible Evidence?” have noted, the reason Daubert does not technically apply in administrative proceedings is because regulatory agencies are largely supposed to be forward-thinking and not held to the standards applicable to “courtroom science.” In other words, regulatory agencies do not always wait (and, depending on your viewpoint, may not be able to wait) to act until the science under consideration satisfies the Daubert standard.


Congress passed the Data Quality Act (also called the Information Quality Act) as part of the Consolidated Appropriations Act of 2001 (Public Law 106-554). This two-line rider directs the Office of Management and Budget to issue government-wide guidelines that “provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies.” OMB’s Guidelines were published at 67 Fed. Reg. 8452 (corrected)(Feb. 22, 2002). In October 2002, the EPA published its “Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency” to implement the Office of Management and Budget Guidelines in the agency.

82 See, e.g., Niam v. Ashcroft, 354 F.3d 652, 660 (7th Cir. 2004).
84 44 U.S.C. §§ 3504(d)(1) and § 3516.
85 EPA/260R-02-008 (October 2002).

In Edison Electric Institute v. EPA, a challenge to certain of the EPA’s “whole effluent toxicity” or “WET” test methods, the D.C. Circuit stated, in a footnote:

Petitioners suggest, without supporting authority, that because the test results will be used as evidence in enforcement proceedings, EPA’s rulemaking had to comply with the standard for scientific evidence articulated in FED. R. EVID. 702, as interpreted in Daubert v. Merrell Dow Pharm., 509 U.S. 579, 125 L. Ed. 2d 469, 113 S. Ct. 2786 (1993). Evidentiary rules govern the admissibility of evidence at trial, not the establishment of the processes whereby such evidence will be created. See Fed. R. Evid. 101 (“These rules govern proceedings in the courts of the United States . . . .”). Of course, insofar as some of EPA’s own criteria mirror the Daubert standard, EPA may not ignore or contradict them without explanation.

The Seventh Circuit, in Niam v. Ashcroft, ruling on petitions to review decisions by the Board of Immigration Appeals denying asylum, held that “the federal rules of evidence do not apply to the federal administrative agencies; so, strictly speaking, neither does Daubert,” but the “spirit of Daubert” applies to them. “‘Junk science’ has no more place in administrative proceedings than in judicial ones.”

In Lobsters, Inc. v. Evans, the court noted that, although Daubert was technically inapplicable to the admissibility of evidence before an administrative law judge in an action involving a penalty issued by the National Marine Fishery Service, the “spirit of Daubert” applied (quoting Niam).

---

87 Niam v. Ashcroft, 354 F.3d 652, 660 (7th Cir. 2004).
89 Niam v. Ashcroft, 354 F.3d at 660.

Sixteen petitions for review have been filed in the D.C. Circuit by three states, industry groups, members of Congress, and companies challenging EPA’s Endangerment Finding90 that six greenhouse gases endanger public health and the environment.91 They challenge EPA’s authority, process, compliance with the Clean Air Act and Data Quality Act, the economic impact, and the science behind the finding, including extensive references to evidence from the so-called “Climategate”92 controversy regarding the release of emails from the University of East Anglia Climatic Research United (CRU).

§ 1.09. Daubert in Climate Change Cases.

An emerging area of law, which will undoubtedly involve extensive Daubert issues, are cases involving claims centered on climate change and climate change concerns. Recent coverage of what is being referred to as “Climategate” only bolsters this conclusion. In November 2009, “[h]undreds of private emails and documents hacked from a computer server at a British university [caused] a stir among global warming skeptics, who say [the documents] show that climate scientists conspired to overstate the case for human influence on climate change.”93 As a result, Climategate has called into question the reliability of the evidence on which climate change regulations are based.

There will likely be a wide variety of cases in this area including challenges to legislation and regulatory action, like those to the EPA’s Endangerment Finding, and actions seeking damages and injunctive relief

---

90 Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009).
93 Id.
like *Connecticut v. Am. Elec. Power Co., Inc.*\(^{94}\) and *Comer v. Murphy Oil USA.*\(^{95}\)

An example of a “pre-Climategate” climate-change case is *Green Mtn. Chrysler Plymouth Dodge Jeep v. Crombie,*\(^{96}\) an action by car dealers and automobile manufacturers challenging Vermont’s regulations establishing greenhouse gas emission standards for new automobiles. The plaintiffs challenged the opinions of three defense experts on the grounds that their opinions were not reliable and would not assist the trier of fact. There was no challenge to the experts’ qualifications. The challenged opinions included: (1) that human emissions of greenhouse gases, including carbon dioxide and methane, are climate “forcing” agents that can cause warming of the Earth’s surface, (2) a “tipping point” theory that at a certain point the changes associated with global warming will become dramatically more rapid and out of control, (3) a finding of a warming trend in New England over the past 100 years and the risks to the “Vermont experience and economy,” and (4) the ability of the automobile industry to comply with the emission standards. After a detailed analysis of each opinion, the court concluded that each of the challenged opinions was sufficiently reliable and relevant to be admissible and that various challenges went to weight rather than admissibility.

§ 1.10. Additional Information Sources.

In addition to the information sources discussed above, there are three information sources on expert opinions that are particularly helpful and important.

The Federal Judicial Center has published the *Reference Manual on Scientific Evidence, Second Edition* (2000) to assist federal judges in managing scientific and technical evidence. It is 638 pages long and includes an introduction by Justice Stephen Breyer, an analysis of the *Daubert* trilogy,

---

95 *Comer v. Murphy Oil USA*, 598 F.3d 208 (5th Cir. 2010), *appeal dismissed*, 2010 U.S. App. LEXIS 4253 (5th Cir. May 28, 2010).
and reference guides on selected disciplines, such as statistics, epidemiology, toxicology, and engineering. It is available for viewing and download on the Internet at www.fjc.gov, under “Publications.” It may be purchased in print from Matthew Bender Publishing Company and West Group.

The Federal Judicial Center has also published the 798-page Manual for Complex Litigation, Fourth (2004). It provides guidance for judges in managing complex cases, including a new chapter on managing expert scientific evidence. It is also available for viewing and download at www.fjc.gov, under “Publications” and for purchase in print from Matthew Bender and West Group.

The Reference Manual and Manual for Complex Litigation are particularly important references for attorneys proffering and opposing scientific evidence because they are official court publications used by federal judges.

Another helpful reference for attorneys is Cynthia H. Cwik and Clifton T. Hutchinson, Scientific Evidence Review, Monograph No. 8 (American Bar Association 2008), published by the American Bar Association Section of Science and Technology. This 688-page book includes a general analysis of Daubert and its progeny, as well as discussion of their application in each of the federal courts of appeals, the district courts in them, and each of the states. While it is, of course, important to use computer legal research to find the latest applicable cases, this reference provides thorough background information.

§ 1.11. Conclusion.

In federal courts, admissibility of expert opinions is governed by Fed. R. Evid. 702, which requires that the expert opinions must be based on (1) sufficient facts and data, (2) reliable principles and methods, and (3) reliably applied principles and methodology. Reliability is measured by a flexible analysis described in Daubert and the subsequent cases applying Daubert. This analysis serves both to exclude “junk science” and unreliable opinions and to permit admission of reliable opinions that have not yet reached general acceptance. Expert opinions must also be relevant to the issues in dispute. Similar considerations apply in state courts that have adopted Daubert.
In states that continue to apply the *Frye* analysis, admissibility of expert opinions requires general acceptance of the expert’s principles and methodology in the relevant scientific community. Some courts also require general acceptance of the conclusions as well as the methodology. Finally, some jurisdictions apply the *Frye* test to all expert opinions while others limit its application to novel scientific evidence.

For states with their own standards, each state’s rules and court cases must be consulted.

It is critical for environmental attorneys to understand and address these standards and the latest cases, including trial court decisions, in the relevant jurisdiction(s).