Chemist's Corner

Are the Data Legally Defensible

by Bart Simmons

As the federal and state governments try to move toward a performance-based measurement system (PBMS), a major question has been asked: Will the data be legally defensible? What does determine whether data are legally defensible?

The Courts Have Their Own Rules

The standards used by the courts are quite different than the standards used in the environmental testing community. In addition, the rules on the acceptability of scientific evidence are different in federal courts than in some state courts.

Federal Rules for Scientific Data:

The federal rules for admissibility of scientific evidence changed in 1993 when the U.S. Supreme Court issued an opinion in the case of *Daubert v. Merrell Dow Pharmaceuticals*. Although the case involved allegations that a drug, Bendectin, caused birth deformities, the ruling had a broad application because it abandoned an earlier standard, based on *Frye v. United States*. In its 1993 Daubert ruling, the court established a more flexible and liberal test of admissibility of scientific evidence. The Supreme Court received a considerable number of briefs from scientific organizations, and this is reflected in their opinion.

> "...under the Rules the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable (*Daubert v. Merrell Dow Pharmaceuticals*, 4827)"

Readers who are interested in a thorough examination of the Daubert ruling may want to look at Foster and Huber's book, *Judging Science*. The question of what constitutes reliable scientific evidence is still subject to debate, but the impact of the Court's ruling was to give the judge considerable flexibility in deciding that question in a particular case. The Court did give judges some factors to consider:

1) whether the underlying theory or technique can (and has been) tested,

2) whether it has been subjected to peer review and publication,

3) the known or potential rate of error, and

4) if it is generally accepted in the scientific community.

Engineers are held to the same rules:

The U.S. Supreme Court recently expanded the Daubert principles to testimony based on technical and other specialized knowledge (*Kumho Tire v. Carmichael*). The court agreed that a district court had properly prevented the testimony of a tire expert whose methods were unacceptable to the judge.

California Rules Are Different Than Than Federal Rules

Unlike the federal courts, California courts still maintain a standard based on "general acceptance" in the relevant scientific community (*People v. Kelly*, 1976). The three "prongs" of this standard are:

1) The scientific test's reliability must be established by its general acceptance in the relevant scientific community;

2) The testifying witness must be properly qualified; and

3) The proponent of the evidence must demonstrate that the correct scientific procedures were used.

None of these rules would pose a significant barrier to environmental test methods, with the possible exception of a "black box," which may operate using principles that have not been accepted in the scientific community.

Case Histories

People v. Hale, 1994: The first line of this California Appellate Court ruling reads:

> "SW-846 is not the name of some new gasoline additive marketed by an oil company. It is the title of a manual compiled by the United States Protection Agency (EPA) dealing with the collection and testing of hazardous waste."

The case involved illegal dumping of 1,1,1- Trichloroethane into waste dumpsters. The appeal focused on major deviations from SW-846: no sampling plan was used, the lab had used Method 8015 (using a flame-ionization detector) instead of the accepted methods 8010 or 8240; the samples were frozen instead of cooling to 4°C.; and the 14-day holding time was exceeded. The court held that the deviations were harmless.

> "We discern no per se rule which does automatically precludes the introduction of evidence of disposal of hazardous waste just because the gathering of the sample does not follow every jot and tittle of the EPA manual."

People v. K&L Plating, 1997: Although this is not a case published by an appellate court, this case involved the use of field methods. This was a manslaughter case, in which a worker died after rescuing another worker who was cleaning out sludge in a waste treatment tank. The prosecution used results from a Draeger tube testing of head space in a jar of sludge and a hydrogen cyanide monitor as evidence that hazardous levels of hydrogen cyanide were emitted from the waste. The defense challenged the reliability of all of the data. Review of validation of the Draeger tube showed that a lower estimate of HCN concentration could be calculated even though the tube changed color on one stroke instead of the required ten strokes. The HCN monitor, the prosecution argued, used an accepted principle and provided an expert witness to support the data. The defendant plead guilty. *People v. Sangani* 1994: This case involved illegal disposal of hazardous waste into a sewer system. The defendant was

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strued exceptions to this rule are when there is a genuine, narrowly defined emergency requiring the proper exercise of the emergency police power, and when the public agency by law has a right to inflict damage. The most recent expression of this rule is in the case of *Los Osos Valley Associates v. City of San Luis Obispo* (1994) 30 Cal.App.4th 1670, where the court held the City of San Luis Obispo liable for subsidence caused to a shopping center by the City's groundwater extraction program, rejecting the City's affirmative defense that the pumping was part of an emergency response to continuing drought conditions.

Liability for subsidence as between the owner of the subterranean land or minerals and the surface owner is the same for private parties as it is for public agencies, but the cause of action is damage to real property or nuisance, rather than inverse condemnation. The owner of the surface has the absolute right to subjacent support and the subterranean extractor is strictly liable for removal of such support regardless of negligence. Civil Code Section 832, which purports to modify the rule for coterminous surface owners who excavate surface lands without negligence, has been held by the *Marin Municipal Water District v. Northwestern RR Co.*, supra, court to apply only to adjacent surface owners, and only to lateral support.

The cause of action of the surface owner arises when the land subsides, not when the extraction is made, and the person who removes the subjacent support remains strictly liable for damages caused by subsidence even though the damages do not occur until after he has transferred his subsurface rights to another party. (*Platts v. Sacramento Northern Railway* (1988) 205 Cal.App.3d 1025.) Furthermore, each separate subsidence creates a new cause of action with a new statute of limitation. (*Bellman v. County of Contra Costa* (1960) 54 Cal. 2d 363, 369.) Therefore, subsidence occurring many years or even decades after extraction is actionable against the extractors, though the surface owner may have difficulty after so many years in proving the early extraction was the proximate cause of the eventual subsidence.

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convicted, but appealed, in part, because the lab which did the analysis was not certified. The Appellate Court found that even if the Hazardous Waste Control Law required the use of a certified lab, the data would be admissible.

> "Failure to follow precise regulatory or statutory requirements for laboratory tests generally does not render the test results inadmissible, provided the foundational requirements for establishing the reliability of the tests are met. The necessary foundational requirements are:

(1) the testing apparatus is in proper working order;

(2) the test was properly administered; and

(3) the operator was competent and qualified. (*People v. Sangani*, p. 1276)"

People v. Adams: In what has been described as an explanation of the general rule of evidence in California, the court found:

Where a statute ...does not specifically provide that evidence shall be excluded for failure to comply with said statute...such evidence is not inadmissible. Statutory compliance or noncompliance goes to the weight of the evidence (*People v. Adams*, 567)."

The courts have their own rules for what is legally defensible, and they should be kept in mind as we reform the test methods used for environmental measurement.

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References

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People v. Sangani, 94 C.D.O.S. 1273 (1994).

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