

## DISCUSSION FORUM

# Expert witnesses and forensic consultants

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What is the definition of an expert witness when it comes to giving evidence to a court or arbitration tribunal? And what is the difference between an expert witness and a forensic consultant? **Peter Tarkoy** of the United States provides guidance from personal experience point of view.

With the advent of social and professional networks, discussions formerly limited to private conversations have been exposed to a more public forum. As such, I have encountered lively discussion dealing with becoming an expert witness, knowing which expert witness service to utilize, and registering as a 'forensic' practitioner or an 'expert' witness. Extensive discussions focus on licensing, registration, and belonging to various entities to become a forensic practitioner or an expert witness.

The discussions appear to miss the fundamental context of being either an expert witness or performing forensic investigations.

I have found that nearly all of the licensing bodies fail to address many expert issues normally associated with tunneling, underground construction, and underground safety.

The featured case histories, describing my experience to date, illustrate some of these points, and show that you have to:

- Know your subject,
- Do your homework,
- Support your conclusions with the facts of the case,
- Provide testimony that is beyond reproach, and
- Avoid shortcuts.

### Expert witness

Many of the discussions focus around "how one can become an expert witness?" and which expert witness service to utilize? In other words, how to take a shortcut?

What many of these individuals fail to comprehend is something that should be self-evident; one has to be an expert long before one is qualified as an expert (witness) by an adjudicator and before one is apt to be called as a witness. Becoming an expert requires education, research capabilities, practice of one's profession, extensive experience, an ability to communicate, and a commitment to maintain the highest integrity. It seems that individuals seeking to become 'expert witnesses' wish to vault the need for first establishing expertise in their field and instead desire to feed their egos and line their wallets with the exorbitant fees that can be charged by some.

Qualification of experts in the courtroom is usually based on appropriate and applicable education and degrees in various fields, longevity of practice and career positions in the profession, number of professional papers published, having taught in the profession, and sometimes even having gray hair. None of the foregoing can assure expertise in the practitioner's field. In my humble opinion, there is only one measure of competence, namely **consistent effective action**.

Naturally, consistent effective action can only be achieved by having expertise, having the ability to present complex ideas to the layman or adjudicator, being objective, providing an independent opinion despite the wishes of the client, and maintaining consistent integrity.

The qualification of an 'expert' to give testimony in the courtroom should be the responsibility of the judge. To be offered as a professional expert, one does not necessarily have to be registered or licensed, or belong to an 'expert' society. It is up to the attorneys and a judge to qualify an individual by appropriate *voire dire*.

Challenging an expert for a lack of license or registration has, in my experience, only served and appeared as an attempt to disqualify someone who could seriously damage the challenger's claims, a mere deprecation. Such challenges rarely win the support of the adjudicators, and have in many instances garnered an adverse blemish on the challenger, especially with juries. Relying on an 'expert's' opinions because he or she has a great deal of education, teaching experience, numerous publications, and longevity, rather than a sole reliance on the facts in evidence, is ludicrous. It is the expert's responsibility to:

- Analyze and present the facts in an understandable fashion

- Develop an opinion based on facts,
- Provide a conclusion with direct ties to the factual evidence, and
- Present the facts in a manner that will allow the adjudicating body to come to its own independent conclusion in a way that is consistent with the evidence presented by the expert.

In the many cases where a licensed or registered individual has made errors, it is hardly necessary for the person pointing out the error to be licensed; however, it is necessary for the expert to give credible evidence and opinion based on a sound foundation of fact.

It has been my experience that judges who find a witness that has 'some' credibility in shedding light on the subject at hand, despite massive objections to his 'expertise' from the opposing party, are willing to listen to the testimony and apply the appropriate 'weight of evidence' factor.

There is a common misconception that an expert must have vast knowledge on a subject. Not so. In fact, in Florida and other states, an 'expert' need only possess knowledge that the average lay person does not have. Judges will allow testimony by such 'experts' and it is up to the attorneys to demonstrate the viability of the 'expert's' knowledge, and to the trier of facts (judge and jury) to sort out the truth. This was a comment posted by Lew Midlam, PE, SI, SECBGo in a LinkedIn group discussion for Professional Forensic Engineers.

### Forensic scientists

By definition, forensic science (often shortened to forensics) is "the application of a broad spectrum of sciences to answer questions of interest to a legal system". This may be in relation to a crime or a civil action. The word forensic comes from the Latin *forensis*, meaning "of or before the forum".

Individuals seeking to qualify as some sort of 'forensic' expert with a 'forensic' registration are seeking a blanket confirmation to avoid qualifying or confirming their competence each and every time they testify. This is not a good idea. Providing a blanket license would allow:

- A departure from rigorous analyses,
- Conclusions to remain unchallenged,
- Presentations that are superficial and untethered to the facts, and
- Reliance on 'registered expertise' rather than forensic expertise.

The ultimate test of any forensic scientist is that their work is beyond reproach and accepted as evidence that stands up to cross-examination in court. In part, the forensic scientist has to be competent:

- In the field of expertise,
- In providing an unassailable foundation of facts,
- In focusing and presenting the facts in a manner that will favorably influence the adjudicator's opinions, and
- In performing with integrity.

The addition of the term 'forensic' merely defines the particular stage, applicable rules, and customs.

Regardless of licensing and registration, such experts are expected to be challenged in court, and rightly so. It is inconceivable to license or register someone as a forensic scientist and thereby approve all his or her work when a court challenge is unavoidable. True test must be based on the quality of each individual body of work.

If you wish to take a shortcut and do less than what it takes to be a *bone fide* expert, you may ruin your reputation for an eternity.

### Case history 1

A Justice Department attorney that had retained me to for a tunneling case asked me act as the expert on a hydraulic dredging case. He would not hear of my objections based on the fact that I was not an expert in this field. After being told to just perform my usual analyses, I relented and accepted the assignment.

During the trial, I was qualified as an expert in construction and analysis of construction performance. The plaintiff's expert was the former Chief Engineer for a dredge manufacturer. One would expect this combination to be a staggering mismatch. However, the defendant (the US Corps of Engineers) prevailed simply because the plaintiff's expert failed to analyze the available dredge performance records and failed to read my (defendant's) expert report. I, on the other hand, studied 800 days of the contractor's dredging records with 60 variables/day, put together analyses that were standard in the industry, prepared illustrative results that clearly identified that the contractor had no basis for a claim, and revealed the cause of the contractor's difficulties.

Investigation of what was indicated in the contract was compared with the contractor's assumptions for his estimate (Fig 1). The indicated gravel content of both the borings and the local gravel pits must be taken into account when calculating anticipated gravel for dredging. The contractor's anticipated gravel was below all indications, and what was encountered was consistent with the indicated percentages.

As a result, the claim that there was more gravel than indicated was disproved. It was also necessary to discover the cause of the less -than -anticipated performance. It was found that the contractor used a very optimistic 70% efficiency for the 40-year-old dredge pump that had not been operated in nearly 20 years. The encountered pump

efficiencies were calculated from the recorded variables and showed that the cumulative operational efficiencies resulted in about 35%, exactly half of what was anticipated (Fig 2). This clearly explained the less than anticipated performance. It behooves one to do their homework prior to professing expertise.

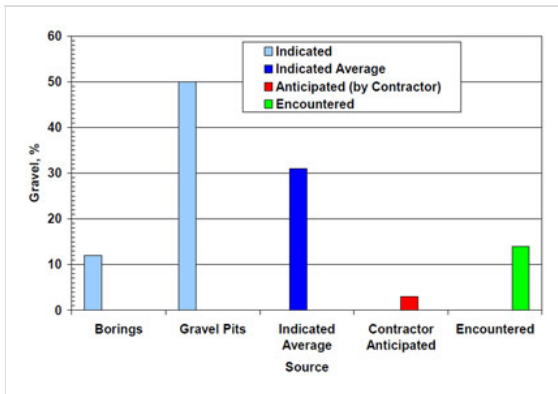


Fig 1. Anticipated / Encountered gravel

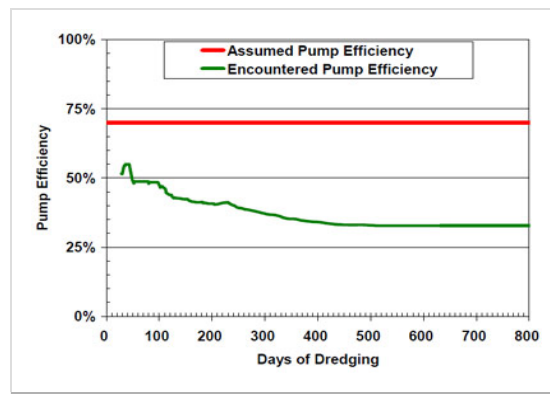


Fig 2. Dredge pump efficiencies

**Case history 2**

During a case in Texas, I espoused industry standards regarding exploration and testified that the documents of the project in question had substandard exploration. The defendant's attorney questioned me as to whether I knew the standards in about 23 of the 254 counties in Texas. My response was that I did not. By claiming that this proved I did not know the local standards, he attempted to disqualify my testimony. My response was that if they did not practice industry standards, it was their choice to have the taxpayers (pointing to the jury), pay more money for such projects. This damaged the owner's case in the eyes of the jury.

**Case history 3**

While still in graduate school, I was called as an expert to testify about a machine manufacturer's misassembly of their equipment in the field. No real expertise was required other than showing that the machine had been assembled in a way that affected the mechanical performance of the machine.

**Case history 4**

While conducting a differing site condition seminar, I was asked by opposing parties (owner's attorney and the contractor) for advice on how to present and adjudicate a differing condition claim regarding a trenching case that had encountered unanticipated rock. My advice was the same for both parties: to represent the encountered conditions as an illustration (Fig 3). A year later, I was retained by the contractor, and when the attorney for the owner found out that I was retained by the contractor, he settled the case. It is not always the 'expert' title that settles a case. It is often an even-handed and fair perspective, and presentation of the facts at hand.

**Case history 5**

On a tunnel project being defended by a Department of Justice attorney on behalf of the US Bureau of Reclamation, I utilized the contractor's shift reports to determine if the contractor had suffered a claimed delay of seven months to install tunnel support. The analysis of the contractor's shift reports showed that they were delayed for only half of a month and therefore, the contractor had no basis for a claim. This was revealed to the contractor during deposition and the submission of illustrative data (Fig. 4) and within two weeks the contractor settled for the monies that were due to him and not the monies associated with the unfounded claim.

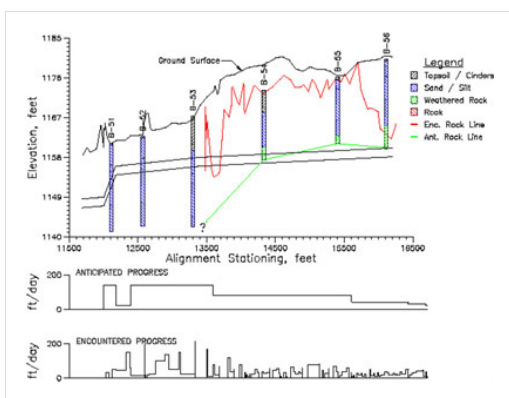


Fig 3. Anticipated / Encountered geology and excavation performance

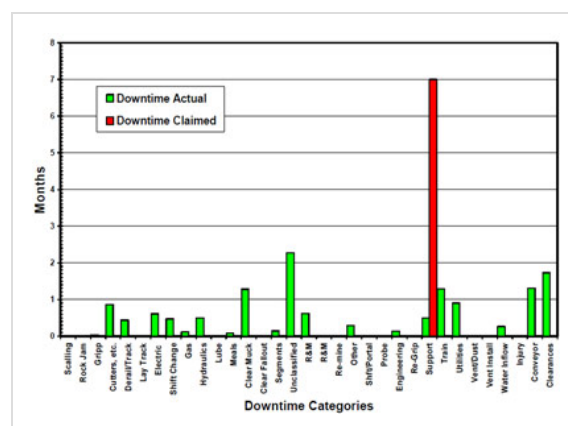


Fig 4. TBM downtime per activity

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