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PRACTITIONER'S GUIDE

SELECTION, USE AND MANAGEMENT OF EXPERTS IN ENVIRONMENTAL LEGAL PRACTICE

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I. INTRODUCTION

Environmental litigation has evolved into a complex undertaking. Defending or pursuing an environmental claim now requires a substantial investment in engineering, scientific, historical and legal research. Moreover, the lines of evidence that may be developed can involve highly non-traditional juxtapositions of disciplines. For example, a claim that oilfield operations have polluted groundwater with salt might require the defense to prove that groundwater in that particular area was historically salty. Developing such a case might include locating historical documents containing specific statements regarding groundwater salinity or historical water sources, interpreting cable tool drillers' logs and old electric logs or showing that local groundwater was too salty for use as boiler water in early drilling and production operations. Likewise, pursuing a

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liability claim against a PRP might require careful dissection of industrial processes conducted by the PRP with the goal of using the suite of released environmental contaminants as a fingerprint of that PRP's operation. Associating that suite of released contaminants with a stratigraphic horizon from the time window in which that potential PRP operated is powerful evidence. As can be readily appreciated, modern environmental litigation requires a team approach involving, engineers, historians, lawyers and scientists. These team members must develop a multi-disciplinary approach to the litigation. Legal strategies and approaches must live within the confines of engineering, historical and scientific possibilities. Engineers, historians and scientists must focus on making contributions which directly support the legal strategies being pursued.

II. ENVIRONMENTAL LEGAL PRACTICE

Environmental legal practice is complex and inherently multidisciplinary. Three main practice areas comprise the bulk of environmental legal practice: environmental litigation, administrative-regulatory practice and transactional environmental practice. Each of these areas requires skillful application of the services of small armies of technical experts.

A. *Litigation*

Environmental litigation activities focus on: common law claims for damages to property and human health and life (toxic tort); natural resource damage claims; enforcement actions by state and federal regulatory agencies; and indemnity and other contractual provisions allocating environmental responsibility and private and public claims under CERCLA, RCRA and other statutory provisions for remediation and cost recovery related to contaminated processing, manufacturing, pipeline, storage, disposal and other facilities. Because of the potential for class actions, this area of environmental legal practice can involve an extremely large financial risk.

B. *Administrative and Regulatory Practice*

Administrative-Regulatory environmental practice involves interpretation and application of the various federal, state and local environmental statutes and their associated regulatory requirements. Aspects of this practice include: representing clients in negotiations before administrative agencies; determining the applicability of regulatory requirements to a client's particular facilities or activities; advising clients on how to alter their activities to avoid costly or burdensome regulatory requirements; assisting clients in pro-actively affecting legislative enactments and rulemaking which may impact their activities; working with new or expanding facilities to identify applicable environmental permitting requirements; renewing, modifying or avoiding permits; assisting clients in the preparation and completion of environmental audits and the implementation of

related corrective action; and advising clients on the management and remediation of existing contamination. This area of environmental practice has become increasingly complex as new laws and regulations take effect. Moreover, because of its complexity, this area of law can be a "barrier to entry" to the marketplace for new businesses and new facilities of established businesses.

C. Transactional Practice

Transactional environmental practice supports the ongoing business activities of its clients by negotiating and drafting agreements allocating environmental risks in connection with leases, purchases and sales of real property, equipment, facilities and business entities and by providing advice and counseling on pre-transaction activities such as due diligence and environmental assessment, and post-transaction activities such as remediation of contamination and correction of non-compliance and deficiencies. Transactional environmental practice also involves representing clients in negotiating and drafting environmental service contracts, access agreements, and contracts related to the treatment, storage, disposal, handling, transportation, or remediation of wastes and hazardous substances. This area of environmental practice endeavors to allow enterprises to conduct their businesses at minimum current cost and exposure to future liability.

III. EXPERT ROLES

A. Definition of an Expert

Although it is certainly possible to describe the role of an expert differently, the definition provided in the Federal Rules of Evidence is an excellent place to start:

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. (Evid. Code §720; FRE 702).

B. The Roles of Experts

Experts bring specialized knowledge and capabilities that assist the pursuit of clients' goals. In litigation, for example, experts can be used to more effectively pursue discovery, develop litigation themes, enhance case presentation and aid in the development of examination outlines for opposing experts. In administrative-regulatory practice, experts can be used to identify and justify more cost effective compliance technologies and systems or develop position papers in support of a client's goals in the development of new laws and regulations. In transactional practice, experts can provide the technical insights needed to avoid future liability or provide insights concerning costs or benefits of

various waste management technologies.

C. Differences in Experts' Roles Among Environmental Practice Areas

The bright line differences between experts working with counsel in purely administrative-regulatory or transactional practice from those working in litigation flow from the nature of the discovery process and the possible eventual requirement that expert testimony will be given in a deposition and/or at trial. In litigation practice, it is very important to closely monitor all information provided to testifying experts. It is also critical to monitor, limit and control interactions among experts. Avoiding conflicts of interest is important in all environmental practice areas, but conflicts can be especially troubling in litigation or adversarial administrative-regulatory matters. Also, previously published opinions are of greater significance in litigation practice. An expert who expressed opinions in earlier publications or testimony in other matters which contradict opinions put forward in the matter at hand is probably not a liability in transactional practice, but would be a severe liability in any adversarial matter.

IV. ASSEMBLING THE EXPERT TEAM

A. When to Begin the Expert Search and Why

The process of identifying and selecting experts should begin immediately upon receipt of the complaint. To the extent possible, counsel should identify areas of expertise potentially required based on the nature of the claims made in the complaint. It should be remembered, however, that litigation, administrative-regulatory practice, and to some degree, transactional practice are fluid. Additional areas of expertise may be required pursuant to amendments to the complaint and information obtained during discovery.

Once general areas of expertise have been identified, the process of locating and identifying specific experts should begin. Since this can be a complex and time consuming task, not all areas should be acted on simultaneously. It is best to prioritize this search activity according to the relative importance of each area of expertise.

Because locating, selecting and working with experts brings added burdens, it might be tempting to delay expert selection. This is a common, aggravating and potentially serious mistake. The knowledge of experts is critical to the formation of an overall technical strategy. Knowledge is power, and the only way to become knowledgeable is by using experts to begin the process of gathering and analyzing data and formulating theories based on that data. Expert knowledge equates to the exercise of more informed strategies with respect to conducting discovery, filing cross-claims and dispositive motions, narrowing the claims, negotiating with other parties and the general advantage of have superiority over those with less knowledge. Decisions based on more information are always superior to those based on less. Therefore, it is extremely advantageous

to be the party with the most knowledge.

Delay in expert selection often results in time and resources being wasted pursuing unprofitable technical and legal tasks. An even greater risk of such delay is that the expert of choice may not be available. In environmental cases, the supply of particular kinds of competent experts remains limited. They may not be available later, and, may in fact have already been retained by a co-defendant or plaintiff. Further, experts require time to prepare. If there is too little time to prepare, an expert will either refuse the assignment or prepare poorly.

B. Identifying Experts

In environmental litigation it is important to shop early. It is equally important to know where to look. Below is a non-exhaustive listing of potential resources for the identification of experts.

1. *Professional associations* are very helpful in identifying potential experts, and stating that their name was obtained from a professional organization to which they belong confers credibility during initial contact.
2. *The authors of relevant treatises, texts and articles* can be especially helpful. The authors are clearly experts. If the treatise, text or article is particularly influential in the field, having the author as an expert might be a distinct advantage. One way to measure the influence or importance of a particular piece of work is to conduct a citation search. A citation search will yield the number and identity of reports which cite that particular piece of work.
3. *College and university professors* have high credibility, and their presence on your team may give local advantage. Academics, however, often have other time demands that may distract from involvement in legal matters. Further, academics may be hostile to the notion of working in a legal setting.
4. *Research organizations* are an excellent source of knowledgeable individuals. Like college and university professors, individuals from research organizations may have many other time demands and may be hostile to working in a legal setting.
5. *Consulting firms* provide expert advice as a business, and many college and university professors have a consulting business on the side. The commercial nature of consulting firms makes them more responsive to litigation demands, but employees of consulting firms may be slightly less credible as witnesses.
6. *Experts with experience in similar litigation* are especially useful if the same opposing counsel was involved. These individuals have lived the process and are familiar with the technical strategies and tactics used by the opposition. It is equally true that these individuals are known to the opposition.
7. *Networking with colleagues* can be a very useful means of identify-

ing experts. Even so, networks are limited and may not have access to the full range of knowledge required.

8. *Programs from seminars* that may have been given on relevant subject matter are a source of information on the identity of individuals who are at least self-declared experts on the subject matter.

9. *Commercial search services* should be considered as a last resort. Such services are employment agencies for experts. Even so, a commercial search service may be able to point the way to individuals with at least a working knowledge of the subject matter being investigated.

10. *The Internet* is a powerful tool and can be used to make many of the inquiries identified above.

V. WHAT TO LOOK FOR IN EXPERTS

The goal of an expert search is to find an expert who is sufficiently knowledgeable in his or her area of expertise and is capable of communicating that knowledge to others.

A. *Technical Knowledge and Communications Skills*

1. Resume Review

Request resumes from the most promising candidates. When reviewing these resumes, pay particular attention to litigation experience, academic training, work experience, valid professional credentials and published works (especially peer reviewed) on the subject of the suit. It might be valuable to perform additional background checks at this point. For example, are the professional credentials, training and work experience verifiable? In addition, it can be useful to have an online search conducted to identify all works published by the author. This may turn up potential problems, such as reversals of opinion or professional associations with opposition experts.

Assume that each party will match expert for expert in every area. Since the experts will be compared to each other, be certain that there is no doubt that your expert is more knowledgeable. It should always be remembered, however, that advantage is lost if the expert is unable to communicate his or her superior knowledge.

2. Interview

Interview the candidates who, based on review of resume materials, are the best suited to the job. Being an expert is just like any other job. Involve the client to the extent desirable or necessary. The client's input in the expert selection process can defuse later disagreements or dissatisfaction. When interviewing the candidates, make inquiries as to their current and foreseeable commitments. Highly skilled people are often heavily committed. Identifying a candi-

date and reviewing his or her resume are for the purpose of assessing knowledge and expertise. The interview is for the purpose of assessing communications skills and appearance.

B. Litigation Knowledge

The expert should not only be knowledgeable about the technical aspects of his or her area of expertise, but should also be knowledgeable about law suits, litigation strategy and the ways in which his or her talents are to be used. An expert without experience in testifying under cross-examination can be very risky.

Check litigation references. Do not hesitate to talk to other attorneys, clients or experts with whom the expert has worked. This may help identify unattractive traits about certain experts that are not readily discernable. If possible, obtain samples of testimony form transcripts of past depositions or trials.

C. Support Capabilities

Determine the expert's support capabilities. If a lot of field work is to be done, this could be an important factor. If the expert feels comfortable working with field personnel supplied by counsel, this need not be a concern. There is even some potential strategic benefit in conducting field work through a consulting expert and developing preliminary conclusions from that work before involving a testifying expert. This is because consulting work can be kept confidential for a longer period of time.

D. Cost

Cost is an important consideration. But never choose an inferior expert in an attempt to save money. As with most things, you get what you pay for. Even expensive experts can be well worth the investment when used effectively. At the same time, be aware of the market rate and don't be afraid to negotiate what you consider a fair deal.

E. Communications Skills are Paramount

Testifying experts need to communicate clearly. The ideal expert, regardless of environmental practice area, would be independent, knowledgeable, competent, honest, trustworthy, easy to understand, and persuasive. In litigation practice, these qualities have an acutely heightened significance. Testifying experts must be able to project their competence and honesty to the jury. Having degrees from prestigious institutions, meaningful honors, memberships in professional associations, a substantial publication record, a position of respect, and a healthy head of flowing white hair may help. Being straightforward, positive, clear, consistent, unambiguous, sympathetic, and understandable to the layman will help.

The jury must be able to understand and believe the testimony given by an

expert. For example, testifying that “There is no definite proof of exposure,” is a good deal less convincing than testifying that “There is no way that the people living here could be exposed to any ‘methyl-ethyl-death’ in their soil.” Testimony at trial or deposition should not be a science lecture. People who say unintelligible things clearly or who can’t enunciate a noun or a verb without immediately accompanying it with an adjective or an adverb sound like fools who are hiding the truth. If you don’t believe this, consider how comics often make fun of politicians. When saying something unintelligible, it would be better if the expert mumbled and had a heavy accent; no one could understand the answer, and the expert would sound more impressive. Lastly, testifying experts must be cool under fire. Opposing counsel is certain to have prepared carefully, been advised by a panel of experts, and, more likely than not, is skilled in asking questions that are difficult or annoying to answer.

F. Character

Counsel must be able to rely on the expert to tell the truth. Experts must be completely honest with counsel when preparing their opinions. Communicating both the strengths and weakness of the technical case to counsel is also essential. Counsel must prepare both a positive case and a defensive case. Nothing is more damaging than being caught unprepared for an attack. Moreover, counsel must weigh the strengths and weaknesses of the case when considering the value of early exit opportunities.

VI. THE EXPERT TEAM

The formation of the expert team is complicated by legal, human, and practical factors. Experts may have conflicts of interest, scheduling difficulties, or personality conflicts with other team members. In addition, they become ill, die occasionally, and may be otherwise difficult to work with. The challenge is to manage the experts in a positive and productive fashion.

A. Diversity

A complex litigation or administrative regulatory matter often spawns a highly diverse expert team. It would not be out of the ordinary, for example, to have an ecologist, an environmental chemist, a geologist, a chemical engineer, a risk assessor and a medical doctor on an expert team. Diversity is a strength, but it can become a weakness unless the experts learn one another’s language and develop a sense of mutual trust.

B. Team Building

Soon after the experts have been identified and retained, it is very important to schedule an orientation and brainstorming meeting. This meeting will have several purposes. At this meeting, counsel can efficiently orient the experts

to the case, the current theory of strategic technical defense and the case calendar. The experts can help strengthen the strategic technical defense and develop a work plan directed toward achieving the goals of the strategic technical defense. Lastly, this meeting will allow the experts to meet and interact with one another, as well as with counsel and counsel's staff. It is important to quietly observe these interactions in order to identify "problem" experts before they disrupt the smooth operation of the expert team. This meeting will be difficult to organize and expensive to conduct. It is therefore imperative that it be carefully planned and executed.

Ultimately, the work product of this meeting will be the beginning of a strategic technical defense plan and a work activity plan whose purpose is to build lines of evidence which support the goals of the strategic technical defense plan.

C. Synergy

It is important that the assembled experts be challenged to "get out of the box" at this meeting. If the experts have been well chosen, they will respond to this challenge and may produce novel technical defense strategies and tactics. For example, in an oilfield groundwater pollution case in the early 1990s, an in-house geochemist, familiar with hydrocarbon analysis of fluid inclusions and radiometric dating, met an Quaternary geologist who was intimately familiar with the geology of terrace gravels in the lawsuit area. Between them, they determined that the carbonate cemented zones in the terrace gravels could be analyzed for their content of hydrocarbon gases by an advanced analytical technique called "fluid inclusion analysis". The time of trapping of the hydrocarbons could be determined by obtaining a ^{14}C date of the carbonate cement and the ^{14}C could be supported by the stratigraphic age of the terrace gravel. This produced a line of evidence, based on hard data, that thermogenic hydrocarbons (i.e., those produced by the heating of organic-rich rocks) had been present in shallow groundwater in the lawsuit area up to 30,000 years ago. Since the plaintiffs in this action were contending that the defendants' activities had caused recent leakages of gas into the shallow subsurface, this evidence was very important to the defense.

VII. EXPERTS AS TEAM PLAYERS

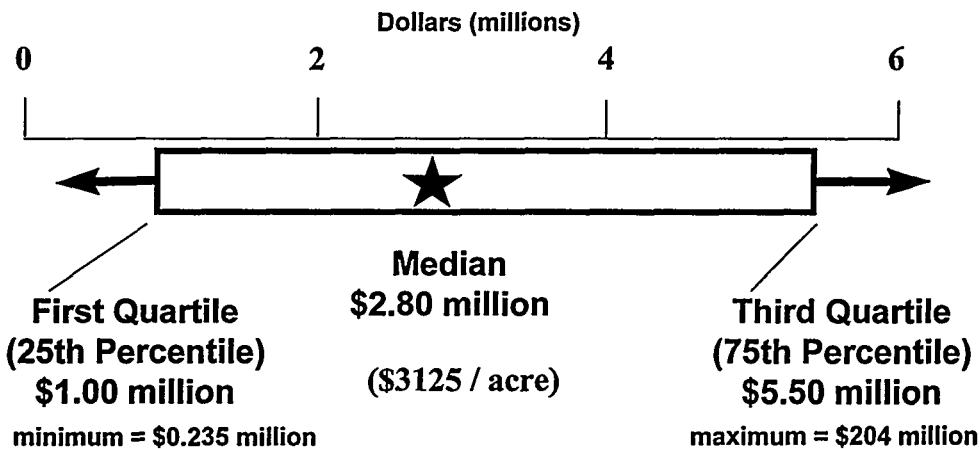
A. Cost of Environmental Litigation

Environmental litigation is costly. As environmental litigation has become more complex, the number and type of experts required to defend or pursue claims has increased. It is not uncommon to have six to ten technical experts (sometimes more) working full time on various tasks. These technical experts may be supported by others within their own organizations, and will be coordinated by attorneys and other professionals. Clearly, this level of activity repre-

sents a substantial cost to the client. A full day of effort by such a team of legal and technical talent could easily cost a client \$15 thousand to \$20 thousand (plus expenses). Legal and technical defense costs for a single client in an Oklahoma oilfield pollution case exceeded \$900 thousand. Such expenditures are often easily justified by the high cost of losing. Based on fifteen significant cases tracked by Gardere & Wynne, the median financial downside (both judgments and settlements) for a client defending a large oilfield environmental action is approximately \$2.8 million (see Fig. 1 for a more detailed look at these statistics). Under any circumstance of cost and risk, it is only reasonable and proper that a client expect and receive value. Certainly, in an environment of high costs and potentially high stakes, clients will monitor the efficiency and effectiveness of their technical experts.

FIGURE 1

Judgments & Settlements in Fifteen Significant Oil Field Pollution Cases (since 1986)



B. Cost Reduction Through Planning and Teamwork

To be effective and efficient, experts need to work as a team with legal counsel. The client may need to accept that the team is costly, but the client will never accept a group of technical experts who are uncoordinated, unmanageable, egotistical, internally conflicted, collectively incomprehensible, and difficult to schedule. The responsibility for management of the team rests with counsel. Counsel must assemble and retain the technical team early in the litigation. Indeed, counsel may have a core team of technical experts retained as a "rapid reaction force" to handle technical issues until a formal technical expert team is formed for the purpose of a particular case. To run efficiently, the tech-

nical team must, as soon as possible, become familiar with the issues involved in the litigation and the other members of the litigation team, understand the long-term strategic goals of the litigation, and, if appropriate, visit the site(s) involved. Counsel must clearly define and explain the general assignment of each member of the technical team to that team member. Working with counsel, each member of the technical team should produce specific short-term work plan(s). As with any project plan, these work plans should include a brief description of each task (including its contribution to the overall litigation strategy); the actions that will be taken to accomplish the task; when those actions are anticipated to begin and end; the resources (human and financial) that will be required to accomplish each task; a description of the work product that each task will produce; and the date on which it is anticipated that work product will be available. Such work plans provide an objective means of monitoring an expert's performance. Further, they provide some economic benefit. This is because certain phases of an investigation may not be necessary if certain claims are modified or deleted altogether. When this occurs, unnecessary tasks can be eliminated. Such decisions are simple if task lists and task plans are available.

Although it may be necessary for counsel to prepare a document describing the interrelationships of all expert work product, individual experts should not specify these relationships in their work plans. To the extent possible, the work product of individual experts should stand on its own and not depend on that of other experts. This structure makes it far more difficult for the opposition to knock down an entire expert team by simply striking the testimony of one expert.

C. Cost Reduction Through Effective Communication

1. Communication of Case Facts and Status

Experts must be furnished with sufficient information to become familiar with the facts of the case in order to form a valid opinion. Experts cannot be expected to function effectively if they lack an adequate legal and factual foundation. To this end, counsel should provide experts with all pleadings, briefs, copies of witness' depositions and all relevant documentary evidence. Experts should review the information provided to them by counsel and communicate any data gaps. Although many experts are knowledgeable about litigation matters, it is also useful to provide experts with a oral outline of the procedural history of the case and its current procedural posture.

2. Communication of Tasks

It is important for all technical experts to maintain regular communication with counsel. In litigation, it sometimes seems that crises and changes in direction and timing occur daily. To the extent that these changes individually and cumulatively impact the timing, nature or extent of the technical experts' tasks,

counsel should communicate these changes promptly. The communication burden, however, is not entirely counsel's. Each member of the technical team should establish specific communication links (i.e., a named individual) with counsel's office and communicate regularly. Typically, this individual will be the person assigned by counsel as the information "gatekeeper" and will be responsible for coordination and management of the technical team. Often, the press of issues in a case may sweep away the best of counsel's and counsel's staff's intentions to communicate changes impacting an expert's work. Redundant communication is reliable communication. A hallmark of organizations involved in high stakes and high risk activities is constant and redundant communication and coordination. Consider, for example, launching and recovering aircraft from an aircraft carrier. If counsel doesn't call you, call them.

3. Communication of Procedures

Counsel must clearly communicate and establish administrative procedures and contractual requirements with each expert when the expert team is formed. The sensitive issues of billing rate, expected level of detail and justification in the expert's billing, timeliness of fee payments and alternative dispute resolution must be discussed, understood, established and enforced early. Each expert must clearly understand that the information gained during the litigation is confidential. Leaks are intolerable. Each expert must understand that all communications with other team members must be approved by counsel. The conditions under which subcontractors may work on behalf of any expert must be formally established. If applicable, special considerations concerning insurance against general liability and errors and omissions should also be established.

VIII. RULES FOR THE ACTIONS OF EXPERTS

It is important to develop a set of protocols for experts. Protocols help prevent mistakes from being made and provide a structure that makes experts feel more comfortable. The protocols must be manageable and functional.

A. *Lines of Communication*

In complex cases, so many people are involved that it is all too easy for several lines of communication to develop between various parties. This is especially true for the experts. Allowing multiple lines of communication to exist produces unavoidable confusion for everyone. The experts should be directed that they are to make reports to or receive instructions from specifically designated individuals; that, unless specifically instructed otherwise, they are never to communicate directly with anyone else. It must be made clear that this prohibition is absolute. When coordination is required, such as in arranging site visits, such coordination will be provided by counsel. It might appear simpler to have the experts make their own contacts to arrange a site visit, but they should

not be allowed to do so. Although it should go without saying, experts must be instructed to never communicate with opposing counsel or opposing experts. Inappropriate communication does occur. For example, in one recent groundwater contamination case in Texas, an expert working for our firm was directly contacted by an opposing expert for the purpose of obtaining one of his publications, which the opposing expert was having a hard time locating from public sources!

B. Working Rules

1. Notes

Experts often feel the need to take notes. Experts should be cautioned that anything they write is likely discoverable. Notes should be made only when absolutely necessary and then should be straightforward, objective statements of observed fact. Speculation and tentative hypotheses should never be written down. Notes should never be highlighted or underlined. In a recent groundwater contamination case, an opposing expert, after only a cursory examination of his data opined in a letter to counsel that "This is the breakthrough that we've been looking for." It wasn't a breakthrough, and he spent a good deal of his time explaining how he did not go about doing a scientific investigation by forming conclusions prior to developing supporting data.

2. Reports

Experts must be cautioned to not reduce any of their work to a written report until they are sufficiently comfortable with their preliminary conclusions and they have been specifically instructed to do so by counsel. Nothing looks worse at an expert's deposition than conflicting reports. Usually, the conflict is the result of preparing an earlier report based more on speculation than fact. Even though the later report is more accurate, the expert will spend a very long day trying to explain why the earlier report is wrong.

3. Documents

Experts are frequently terrible document managers. From the outset, experts must be instructed to hold all documents pertaining to the case separate and apart from all other documents. The expert must institute some type of document management system, but it should be kept simple. It is often effective to simply have the expert deposit documents pertaining to a case in a clearly labeled cardboard box. Experts should be instructed to never annotate, underline or highlight documents. Marginalia attracts the interest of opposing counsel and may expose technical strategy. If experts feel the need to mark specific pages for later reference, this can be accomplished with Post-It's or "flags" specifically manufactured for this purpose. If necessary, show your experts how to use them. Spare yourself the night sweat over a circled paragraph, an arrow and a

dismissive expletive on a document.

IX. USING THE EXPERT TEAM

A. *Development of a Technical Strategy*

Following review of the complaint and relevant facts, the expert team's first task is to develop an overall technical defense strategy. The technical strategy is arrived at by defining the main themes of the opposition's technical case and developing key counter arguments for each theme. The technical defense (or offense) should be based on hard data and well-reasoned interpretations of these data. For example, in a proposed class action involving an historic Oklahoma oilfield, the plaintiffs claimed that the shallow groundwater aquifer underlying the entire litigation area was pervasively contaminated by saltwater, but they presented little hard evidence to support this claim and argued generalities. The technical defense strategy which emerged was to marshal overwhelming hard, specific evidence demonstrating: (1) that no bedrock aquifer existed in the area, (2) that the shallow water-bearing sands that did exist were discontinuous, (3) that, where produceable groundwater did exist in the litigation area, it was more likely to be uncontaminated than contaminated, and (4) that some of the shallow water-bearing sands in the litigation area were noted to contain saltwater when the field was first developed. This strategy was successful in defeating class certification.

B. *Preparing Discovery*

The expert team should play a significant role in the discovery process. Involve the experts in the discovery process. Appropriate members of the expert team will review the client's documents as well as documents produced by the opposition in their efforts to support the strategic technical defense. Any field investigations will be conducted by members of the expert team. The expert team should also aid in both responding to discovery and drafting discovery requests. Further, opinions given by opposing experts in the current case as well as relevant opinions expressed in the literature or prior testimony should be critically examined by the expert team. If opposing experts are to be deposed, members of the expert team should be involved in drafting deposition outlines and specific questions to be asked at the deposition. In some instances, one or more members of the expert team should attend depositions so as to assist the interrogation of the opposing expert which ultimately will help prepare the expert team for their own depositions.

Experts who will be deposed should work especially hard in preparing to be questioned concerning their opinions and the information upon which their opinions are based. Experts who will give testimony should practice using any exhibits or demonstrative aids. Testifying experts must be adequately prepared. They should rehearse giving responsive and communicative answers. It is a

good practice to challenge their answers and opinions. Identify problems such as argumentativeness, loss of focus, narration, and non-responsiveness before they are faced by opposing counsel. If the deposition is to be videotaped, the expert should rehearse posture, facial expressions, voice projection and inflection. Your expert witness should be taught, for example, to look into the camera when answering a question.

C. Experts Before, During, and After Trial

The expert team should be heavily involved in trial preparation. The experts may help develop an outline for their direct testimony, design cross-examination outlines for opposing experts and continue to refine their opinions. The experts can identify exhibits to be used at trial, and can design (and sometimes produce) visual aids (graphical aids, videos, animations, etc.). Experts should be advised that trial preparation is a grueling and complex undertaking.

At trial, the testifying experts, of course, will testify. The expert team may be called upon to evaluate testimony given by opposing experts to help modify cross-examination outlines and tactics. Throughout the trial, counsel will rely on the expert team to explain technical concepts, field technical questions and act as back-up sounding boards for testifying experts. All experts who will have a role at trial should be advised that they may be asked to work long hours on short or no notice. If the experts are advised of this in advance, they will more likely accept the severe time restrictions that accompany work in support of a trial.

During appeal (if any), the expert team may be called upon to help in constructing any technical aspects of briefings. In general, however, once judgment has been rendered by the trial court, the experts can go to a low level of alert.

X. SUMMARY

A substantial investment in engineering, scientific, historical and legal research is required to successfully pursue or defend an environmental claim. As a consequence, the technical experts must be carefully and creatively managed as a team. Expert team members must develop a multi-disciplinary approach to the litigation, and be open to working and thinking synergistically. Legal strategies and approaches must live within the confines of engineering, historical and scientific possibilities. Technical experts make contributions which directly support the legal strategies being pursued.

If the reader is perhaps assuming that the recommendations made in this paper are routinely followed in all cases, we can assure you that they are not. Environmental cases are too complex and the financial exposure is too great not to follow the kind of detailed procedure for using experts outlined in this paper. In environmental litigation, experts often are the case—use them well.

