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The Streamlined Expert Report: Structure of Expert Report for Forensic Schedule Analysis

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ABSTRACT— The expert report is the culmination of a forensic consultant's analysis and the single most important work product for the assignment. Focusing on our experience as scheduling and productivity experts, this paper discusses strategies in writing a defensible report, including the basic elements of the report, tactical issues such as timing, discovery, and testimony, as well as a brief outline of the legal requirements for expert reports.

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Introduction

Over the years in our practice we have had the opportunity to read as well as write many expert reports with a wide variety of content and format. They range in style from a hand-scrawled page torn from a note book to a multi-volume epic, complete with an attached portable hard-drive full of data. Then there's everything in between. An interesting example includes a hardcopy of mediation slides used by the expert, containing no substantiating data or analysis. There is also the re-written version of the claimant's claim package submitted under signature of the expert. While we do not advocate a report that skimps on substantive content, our preferred format follows the philosophy, "Less is More."

General Principles

"Less is More"[15] is a aphorism associated with the German architect Ludwig Mies van der Rohe, coined in the early 20th century, as a precept for minimalist design. In architecture, where "Less is More" originated, the idea is often invoked in combination with the phrase "Form Follows Function"[16], used by the American architect Louis Sullivan. As applied to expert reports, these principles dictate that any report element that is not absolutely necessary to accomplish the intended purpose and the legal requirements should be stripped away.

Besides the plain and obvious function of clearly presenting the objective findings of the expert analysis the ultimate function of the style and content of the report is to persuade the trier of fact, and if possible, the opposing party, in the correctness of the opinion. Therefore, the prime directive is for the enhancement of credibility.

In our experience, following the "Less is More" philosophy in crafting the expert report results in work products with substance and resilience. What follows are some practical guidelines developed on this principle.

1. Narrow the Scope

The declared scope of the expert's opinion is king. It governs everything. Therefore, it follows, that the initial strategy in minimalism is to narrow the scope down as much as possible. First, the scope of opinions should obviously fit within the designated expertise [2]. It should be specific enough to be meaningful to the facts and the issues of the case but general enough to allow for maneuvering room as arguments develop and change during the case. Within these basic requirements, it should provide key evidence that can be provided only by expert opinion, as envisioned by the trial team, nothing more, nothing less. In honing the scope, the importance of close coordination and communication with trial counsel cannot be overstated.

The usual trend in preparing a construction delay and disruption dispute is that the multiple issues become winnowed into a few key issues as the case approaches trial. It follows then that this all important threshold step in preparing the report ought to occur as late as practicable in the case preparation process. This is not to say that analysis should be put off until late in the case. Rather, we are saying that preparing a report of the findings on the analysis is driven by the finalized scope of the expert opinion which may only be a subset of the analysis performed originally with a much wider scope of investigation. Thus the reporting is what should occur as late as possible. There will be more discussion on the timing of the submission of the report later in this paper.

2. **Minimizing the Narrative**

Do not provide any more narrative text than absolutely necessary to provide the basis of the expert opinion. Waxing poetic or igniting polemic fire on behalf of the client does nothing for the credibility of the opinion and often detracts from it. Take the example of the aforementioned expert report fashioned after the plaintiff's claim binder. Such a report is often unnecessarily overbroad in its scope, the tone of the narrative is confrontational or unnecessarily partisan, and numerous observations and representations are often undocumented or unsupportable by fact witness testimony.

The more statements the expert makes, the more he has to defend. And the less an expert has to defend in the report the more likely the opinion will withstand attacks. In a technically complex construction delay case the effect of added opinions to the incremental burden of preparing to defend the report is often exponential rather than linear. Thus, if it doesn't have to be said, keep it off the report.

Spare, efficient writing promotes readability. Readability leads to more involvement by the reader, which in turn allows the reader to better understand the writer's point of view. Unless the strategy is obfuscation, the last resort of desperation, a rigorously edited, readable text is well worth the investment of time and effort. If the reader understands the analysis and the resulting opinion he becomes invested in that understanding and therefore is more likely to favor that opinion over something he does not understand.

Last but not least, remember that forensic reports are rarely read for pleasure. Aside from the triers of fact, the main readers are the opposing parties, their counsel and experts who are often hostile to the message contained in the report. Therefore conciseness, readability and inoffensiveness of tone would be appreciated and goes a long way toward easing the consumption of the message.

3. **Minimizing Technical Content**

One of the keys to readability and ease of comprehension is to minimize technical content. That seems an impossible task in an expert report on a highly technical subject such as forensic schedule analysis. But we accomplish this by placing most of the detailed technical content in what we call the "Technical Appendix" which is attached at the end of the main body of the report. Strictly speaking this does not completely remove detailed technical content from the overall report. However, it does have the effect of streamlining the main body of the document. The narrative in the main body would contain technical concepts and application of those concepts to the key facts of the case, but it would not contain a recitation of all the relevant facts, nor a full set of findings from the quantitative analysis. Essentially, the main body of the report becomes what some would call the "Executive Summary," albeit a very long one. It would contain just enough technical content to allow the reader to understand the basic method and its application to the facts.

The "Technical Appendix," like the narrative, is prepared using the rule to not provide any more back-up material than necessary. But this must be balanced against the legal requirement that the responding party must be able to replicate the analysis leading up to the opinion. Unlike most appendices, our “Technical Appendix” often contains more narrative than the main body of the report, explaining the implementation of the analysis method and the findings of the analysis in detail.

We will discuss the structure and the content of our report in further detail. But before that, in the interest of true brevity, ponder the threshold question, “Is a written report even necessary?”

Legal Requirements for Content and Format

1. **California**

In California, the California Code of Civil Procedure §§2034 [3] provides that the parties’ attorneys exchange, through an expert witness declaration, all expert witnesses that are a party to the action; an employee of a party; or retained by a party for the purposes of forming and expressing an opinion [4]. Detailed information must be provided for these experts compared to the limited information for percipient witnesses. This information includes qualifications to give an opinion, including relevant education, employment and experience; the general substance of expected testimony in a brief narrative; and the costs and fees for the expert [5]. Because of its general nature, this information may be provided in a brief, summary format, such as a bulleted list of opinions.

In addition to the expert declaration, there is also an exchange of all discoverable reports and writings made by the expert in the course of preparing his opinion [6]. Only reports in the capacity of the expert opinion are discoverable. Consultants’ advisory reports are still a protected work product unless good cause can be shown for potential impeachment uses. These reports and writings consist of any findings and opinions that go to the establishment or denial of a principal issue in the case, and therefore must be turned over to the opposing party [14]. Reports need only be produced if they exist; the California rules do not in any way obligate the expert to prepare a report.

Because the expert can control their scope as it relates to the principal issue and the findings necessary to establish an opinion, the expert can readily employ the “Less is More” philosophy in the report phase. Though the court does have discretion to exclude testimony based on a report that was not timely disclosed, all other testimony is fair game, limited only by the initial general declarations.

2. **US Federal**

While in California courts, the preparation of a report is discretionary; in US federal courts, a report is mandatory. Under the US Federal Rules of Civil Procedure, Rule 26(a)(2) a party must disclose its expert witnesses, who must provide a report if the expert witness is one retained or specially employed to provide expert testimony in the case, or one whose duties as the party's employee regularly involve giving expert testimony. The report must contain:

i. a complete statement of all opinions the witness will express, and the basis and reasons for them;
ii. the facts or data considered by the witness in forming them;
iii. any exhibits that will be used to summarize or support them;
iv. the witness's qualifications, including a list of all publications authored in the previous 10 years;

v. a list of all other cases in which, during the previous 4 years, the witness testified as an expert at trial or by deposition; and
vi. a statement of the compensation to be paid for the study and testimony in the case [8].

Draft reports and all items considered are no longer required to be disclosed under the 2010 amendment to FRCP Rule 26. Therefore, only final reports are required and attorney/expert communications are off limits and protected.

This report is mandatory and must be prepared by the testifying expert; its required disclosures are very broad; an incidental effect may be to render it unnecessary to depose the expert. Testimony at trial is generally limited to the contents and scope of report (though the court has the discretion to allow additional opinions if not prejudicial).

The court's purpose in the rigid requirement for full disclosure through the report is because expert testimony may be complex and difficult for the layperson to readily understand, so the opposing side must be given sufficient time to overcome these obstacles [13]. A thorough review of the cases is recommended to understand where the "Less is More" philosophy has been accepted. The cases are fact specific; however, one constant is that as long as there is not undue surprise or prejudice to the other side, testimony can be allowed.

3. **International Chamber of Commerce (ICC)**

The International Chamber of Commerce World Business Organization Rules of Arbitration provides that a report may be all that is necessary. The case may be decided by the Arbitral Tribunal based solely on the documents, though either side may request a hearing; this may be necessary to cross examine the expert on their report [12]. This is an extreme situation where the report must contain all information in a clear, concise and organized presentation, because there is not an opportunity to present direct oral testimony. In these cases, the less is more philosophy could be detrimental to the case, though overkill will also jeopardize the thorough understanding of a party's position.

Components of the report

What follows is a section-by-section discussion of the components of our report format. The sections are enumerated below in the order that they appear in the report:

- qualifications;
- scope of opinion;
- foundation/sources;
- analysis method;
- analysis findings/observations;
- conclusion/opinion;
- anticipated future work/reservations; and,
- limiting conditions/caveats.

The format was developed so that the sections and their order of discussion track closely to how a typical expert witness deposition is conducted.

1. **Qualifications**

The testifying individual's expert qualifications are stated here. Our format usually contains a brief paragraph summarizing the qualifications and refers to an attached curriculum vita (usually Exhibit 1) for details. The summary paragraph may contain relevant experience similar to the facts, type of construction or analysis performed, and relevant certifications such as a PE, PSP, or a CFCC. An example from one report appears below:

"I have been, for the past twenty-seven years, the principal of [Name of Firm], located at [Business Address]. The Firm is a consulting organization specializing in construction scheduling and labor productivity. The scope of consulting assignments includes both front-end scheduling services, as well as analysis related to construction claims, representing contractors, subcontractors, suppliers, owners, design professionals and construction managers. I possess current and active certification as a Planning and Scheduling Professional (PSP), and as a Certified Forensic Claims Consultant (CFCC), with the Association for Advancement of Cost Engineering International (AACE International). My resume is attached hereto as Exhibit 1, and is incorporated as part of this qualification statement."

This section is also the place to list the relevant expertise declared in support of the expert opinions. While there is nothing wrong in claiming "construction scheduling" as the expertise, we list several specific areas of expertise within that broad subject. Here is another example:

"My specific area of expertise within construction scheduling includes, but is not limited to:

- CPM schedule techniques and extended technical applications.
- Uses of CPM in construction project controls and project management.
- Forensic schedule analysis.
- Schedule delays, disruption and acceleration.
- Loss of labor productivity. And,
- Construction contract law pertaining to scheduling, delays, time-extensions, acceleration, schedule disruption and resulting loss of productivity."

Some jurisdictions, including US Federal Courts, require that expert testimonies under oath for the past specified number of years be listed. There may also be requirements for listing lectures, papers and other publications authored by the testifying expert. In addition, if required, such as in California, a statement consenting to testify for the matter is placed here along with the current hourly rate for deposition and testimony.

2. **Scope of Opinion**

As discussed earlier, the scope ought to be as narrow as practicable, but still allow for maneuvering room. However, the scope should never be any broader than the declared expertise. For example, if the expertise is solely in scheduling, the witness would not be allowed to testify as an expert for the entitlement aspects of a differing site condition delay that involves analysis of geotechnical data. The proper scope of opinion would more likely be on the factual causation of the delay, the quantification of the delay, and its impact on the critical path.

We find it helpful to express the scope in the form of the ultimate questions that the trial counsel would ask the expert on the stand during direct examination. Our "Scope" section often contains these questions, followed by our opinions in the form of answers to the questions. This is essentially a preview of the conclusion section of the report which appears at the end and serves as a very short executive summary.

3. **Foundation / Sources**

In this section we list the documents and data used for the analysis. We classify these documents and data as either "Primary" or "Background" source. Primary sources are items such as project schedules, daily logs and schedule update narratives, which are intensively used for analysis. An example of a background source may be the project plans and specifications which are used as reference for understanding the project, but may not play an immediate role in the analysis. The grouping allows us to keep a relatively short list of sources in the report and put an extensive list of background source documents in the Technical Appendix or as a referenced exhibit separate from the narrative.

Reference to background sources is made even simpler if the parties have established a common document depository with serial numbered (such as Bates). In that case the narrative may simply state that the analysis team had unlimited access to all the documents in the depository as background data source.

Specific documents used as a basis of specific findings of fact in the narrative are referenced by footnote and copied in a tabbed "Footnote References Binder" appended to the report. This is our standard practice for reports submitted under I.C.C. jurisdiction.

Because this section is intended to capture basic foundational parameters of the expert opinion, we often place at the end of the section a statement regarding the number of hours the document and data sources were processed and analyzed for the purpose of the report.

4. **Analysis Method and Implementation**

This section discloses the method used to analyze for or test the opinion and the specific implementation of the method as applied to the specific facts and the data for the particular case. The awareness of the distinction between 'method' and 'implementation' is an important one in writing this section. In forensic schedule analysis, 'Method' refers to the generic tool of schedule analysis. For instance the nine method implementation protocols (MIPs) in the RP/FSA [1] are methods. 'Implementation' refers to how the analyst applies the methods to the facts of the case. It is the expert's particular technique in using the tool. If used according to recommendations, methods are rarely at fault for a flawed opinion. The fault usually lies in faulty implementation of the method or a skewed interpretation of the results, or both.

In discussing the method(s) chosen for the analysis, industry standards, learned treatises or peer reviewed studies like the RP/FSA are useful. First, they lend weight to the legitimacy of the selected method [11]. But also it allows the expert to simply refer to the source document where the method is described, rather than describing the full method in the report. Let those industry sources do the heavy lifting.

In citing and using methods outlined in these industry documents, it is important to read the document thoroughly and understand the applicability and limitations of the method. So for example, in using the RP/FSA, not only must the specific subsection for the selected MIP be read and understood, but also all the attendant Source Verification Protocols (SVPs) that are part of the proper implementation of the method need to be understood.

In our report, implementation of the method is discussed in the main narrative to the extent that certain aspects of it are non-standard. A detailed, step-by-step implementation using graphic flowcharts and annotated spreadsheet forms are often used to enhance the narrative, but are contained in the Technical Appendix. The process of describing the implementation in detail is very helpful in reviewing the analysis process and spotting flaws. I highly recommend it.

If there are key assumptions or limiting conditions that are non-standard, this is the place to list it. Examples of such non-standard assumptions and/or conditions include matters such as:

- assuming as correct for the purpose of the analysis a certain legal interpretation of a key, controversial provision in the contract. And,
- exclusion of opinions for certain portions of the project timeline covered by a 'clean slate' change order.

Even if an assumption is considered to be the weak link of the analysis, it is better to declare it and explain the mitigation measures taken to adjust for potential weaknesses in the report than for it to be revealed in deposition or at trial.

If the analysis was performed using associates or with other experts, the rules and conventions used during the collaborative segments of the analysis ought to be listed. For example, when the team recreated missing schedule updates was the hindsight rule or the blindsight rule used in assigning remaining durations? [1]

5. **Analysis Findings/Observations**

Along with the Analysis Method section, this is the section that can be abridged by the use of a Technical Appendix.

The section would contain the significant observations made by the expert during the analysis and the process of thought leading up to the final opinion(s). Sometimes I call these observations and findings "sub-opinions" because they culminate in a final set of opinions. Thus the project data is broken down, analyzed and described in this section, then re-assembled, synthesized and integrated in the "Conclusion" section.

6. **Conclusion/Opinion**

The analysis leading up to this point is now put into a final set of opinions. The content of this section, in our report format is not very different from the "Scope of Opinion" section where the scope is delineated and our opinion for each of the scope is previewed. This keeps the heart of the report as minimalist as possible.

7. **Anticipated Future Work and Reservations**

This section allows the expert to reserve the right to perform further work beyond what is expressed in the report. There is always the desire by the opposing counsel to limit the expert's opinion to only that specifically expressed in the report. While the flow of opinions cannot remain open-ended with the approach of trial, this section attempts to keep the possibility of additional opinions open for the client trial attorney. I list below a sample language from one of our recent reports:

- Analysis and testimony in rebuttal to the plaintiff's expert testimony related to delay, hindrance and disruption damages.
- Testimony on subjects within my designated expertise that may become relevant during the trial that are not addressed in this report.
- Evaluation of the plaintiff's expert testimony, and adjustment of my opinions, as necessary.
- Review other evidence that is made available to me and adjustment of my opinions, as necessary.

8. **Limiting Conditions and Caveat**

A common problem in completing a report is that one never seems to have access or the opportunity to review all the documents and data which may be relevant to the formulation of opinion. Shown below is an example of one caveat paragraph from our report:

- Representation of facts contained in this report on which the analysis and conclusions are based are assumed to be correct based on our knowledge and belief that they were obtained from sources considered reliable and correct. However, no liability or warranty for the accuracy of the information is assumed by or imposed on us for the information, and it is subject to correction and/or withdrawal if additional or refined information is obtained.

This tendency for significant information to be slowly released points to the desirability of completing and submitting the report as late as possible. And of course, for those readers who are experienced practitioners, you are very familiar with general, practical desire to get as much time as possible in submitting the report. So what are the legal limits?

Legal Requirements in Timing the Submission

In a standard California case the initial exchange of declarations, reports and writings must be made 20 days after service of the demand, or 50 days before the trial whichever is later [7]. When the exchange is made the declaration must state that the expert listed is familiar with the case and ready to be deposed and will provide a meaningful oral deposition concerning any opinion and its basis.

Nothing in the Code prevents experts from creating new or additional reports after the initial specified exchange date. As a practical matter the courts are empowered to consider whether a disclosing party is manipulating the rules and whether the receiving party has sufficient time to depose the expert on the new or additional findings. If the court finds that the rules are being manipulated without adequate time to respond, then the new or additional information may be excluded from testimony at trial.

In US Federal Court the disclosures and reports shall be made when the court directs. Absent a court order or stipulation of the parties, such disclosures are due 90 days before trial [9]. Parties will need to be clear about which disclosures are required to comply with the ordered schedule. It may be that rebuttal experts must be disclosed, with the reports being deferred, or perhaps the rebuttal expert identification and report are deferred.

Supplemental disclosures are mandatory in Federal Court to correct experts' report or deposition testimony if they learn the report or testimony is incomplete or incorrect in some material respect [10]. These supplemental disclosures must be made in a timely manner and, unless otherwise ordered, no later than 30 days before trial. These supplemental reports are only to correct incomplete or incorrect information and can also be used to expand or improve on the initial report; however, it cannot state a different opinion or give an opinion on new matters. If the supplemental disclosures are not made timely, then the contents of the disclosures will be excluded from testimony.

Conclusion

Less is more. If you have narrowed your scope, edited the narrative, swept the back-up, and stayed with the minimalist approach, and most importantly performed the work with integrity, you have nothing to hide. Present your opinion with confidence, knowing that you have a defensible report behind it.

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