

IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA

ATLANTIC RICHFIELD COMPANY,
CHEVRON U.S.A., INC., EXXON
CORPORATION, MOBIL OIL
CORPORATION, SHELL OIL
PRODUCTS COMPANY and TEXACO
REFINING AND MARKETING, INC.,

Plaintiffs,

vs.

UNOCAL CORPORATION and UNION OIL
COMPANY OF CALIFORNIA

Defendants.

and

UNION OIL COMPANY OF CALIFORNIA,

Counterclaim Plaintiff,

vs.

ATLANTIC RICHFIELD COMPANY,
CHEVRON U.S.A., INC., EXXON
CORPORATION, MOBIL OIL
CORPORATION, SHELL OIL
PRODUCTS COMPANY and TEXACO
REFINING AND MARKETING, INC.,

Counterclaim Defendants.

CASE NO. CV-95-2379 KMW(JRx)

EXPERT REPORT OF DAVID J. TEECE

HIGHLY CONFIDENTIAL

EXPERT TESTIMONY OF DAVID J. TEECE

I. INTRODUCTION AND BACKGROUND

1. My name is David J. Teece. I am Mitsubishi Bank Professor in the Haas School of Business and Director of the Institute for Management, Innovation and Organization at the University of California at Berkeley, and Principal and Chairman of the Law and Economics Consulting Group, Inc. I have published over 100 scholarly books and articles in the fields of industrial organization, technology management, and public policy. My doctoral dissertation was on international technology transfer. I have written extensively on technological innovation and on the petroleum industry. Relevant publications include *R&D and Energy: Implications of Petroleum Industry Reorganization* (ed.), Stanford: Stanford University Institute for Energy Studies, (1977). I have also written extensively on licensing, including "Licensing and Cross-Licensing in Electronics: Managing Intellectual Capital for Design Freedom and Wealth Creation" (with Peter C. Grindley), *California Management Review* (forthcoming 1996), and "Profiting from Technological Innovation", *Research Policy*, (1986). I am also a member of the American Economics Association and the Licensing Executives Society. I am Co-Editor and co-founder of *Industrial and Corporate Change*, a journal published by Oxford University Press which focuses on innovation, corporate strategy, and public policy. A copy of my curriculum vitae is attached hereto as **Appendix A**. I also have extensive experience in litigation consulting in a wide range of industries.
2. I have been asked by counsel for Union Oil Company of California and Unocal Corporation (collectively, "Unocal") to testify on damages issues, and specifically on (1) reasonable royalties that might be charged by Unocal to license its patent on "Gasoline Formulation", U.S. Patent No. 5,288,393 ("the '393 patent") and (2) Unocal's lost profits due to past infringement of the '393 patent by the various counterclaim defendants in the present case.
3. The remainder of this section is my understanding of the factual background of the case. This is derived from a review of the materials listed in **Appendix B**, conversations with Unocal

view, Unocal's response would be to ask the potential licensee for refinery-specific information sufficiently detailed to allow Unocal to verify the potential licensee's claims that the "blend-around" alternative would only cost \$3 million. Unless and until the potential licensee supplied that information, Unocal would (in my view rightly) view this as a "bargaining ploy" to reduce the royalties, and would refuse to agree to such a suggestion.

15. I believe that both parties would also be aware, during the (hypothetical) negotiation, that regardless of any "build-around" or "blend-around" options which prospective licensees might pursue, they would always be in the position of needing to deal with the prospect of occasional infringement, whether due to day-to-day variations or to "episodic" problems. Each potential licensee would therefore have to address the costs of the import/export alternative, unless it were able to reach agreement with Unocal on the terms of a license.
16. I view my current analysis in much the same light. I have tried to evaluate the information provided by plaintiffs to get a sense of what a reasonable starting position (and possible finishing position) in the hypothetical negotiations might look like. When and if the plaintiffs respond with sufficient information to enable me to evaluate their refinery-specific costs of avoiding the patent, I would then be in a position to supplement my report to reflect that additional information if it were to cause me to revise my opinion. However, as I point out in more detail in Section VI.1 below, in my view the high historical infringement rates make it unlikely that this will happen; if there were low-cost alternatives, I do not believe it likely that the plaintiffs would have infringed to the extent that they have.

V. COMPARABLE LICENSES

1. Survey of existing Unocal and other licenses

1. One of the key Georgia-Pacific factors in assessing a reasonable royalty involves examining comparable existing licenses in the industry covering similar innovations.
2. Licensing is widespread in the oil refining industry. Royalty payments under such licenses have been structured in a variety of ways. The royalty payment structure selected depends on the type of process or technology being licensed.

3. My staff and I have reviewed 183 licenses in which Unocal was involved over a period of 40 years. These demonstrate the broad range of licenses and payment schemes in the refining industry. In addition, an examination of a large number of license agreements from other oil companies supports the assertion that innovations are commonly patented and licensed by the patent holder.
4. Many of the historical licenses in this industry involve low royalty rates, on the order of the equivalent of one cent to fifteen cents per barrel of crude oil. (A barrel of crude is 42 gallons.) The potential licensees might be inclined to argue that royalties in the present case should be of roughly the same order of magnitude. I disagree.
5. There are three main bases for my position. First, the royalty rates I propose are on **infringing** gallons of gasoline, while the rates from the earlier licenses are on **all** barrels of crude. To the extent that other firms succeed in avoiding the Unocal '393 patent, they can avoid paying any royalties whatsoever. This is not the case with a cents-per-barrel royalty.
6. Second, virtually all of the earlier licenses I have seen involve **process** patents, rather than the **composition** patent at issue here. Process patents involve improved ways of making an existing product, and thus royalty rates reflect the cost savings associated with the improved process. In contrast, Unocal's patent is for a new product — namely, reformulated gasoline that provides an innovative solution to the emissions problem. Further, the choice of whether or not to use a particular process is generally "all or nothing," since the firm must adopt a particular process (or set of processes) to make the product. This differs from the present case, with the prospect of occasional infringement due to day-to-day or episodic variations.
7. Third, in recent years — notably since the advent of the Court of Appeals for the Federal Circuit, a specialized appeals court which has jurisdiction over patent issues, and which is noticeably more pro-patent than earlier courts — effective patent protection, and perceptions of the importance of protecting intellectual property, have increased significantly. This has led to higher royalty rates (often significantly higher) in other industries, and could be expected to have a similar effect in this industry. Low historical rates do not reflect this transformation.