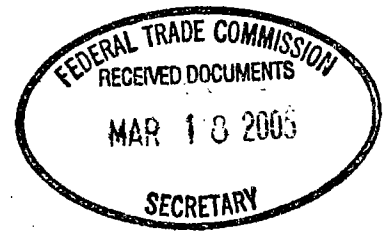


UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION



In the Matter of

UNION OIL COMPANY OF CALIFORNIA,
a corporation.

PUBLIC VERSION

Docket No. 9305

ERRATA SHEET

Certain references contained in Complaint Counsel's Post-Trial Brief and Post-Trial Findings of Fact, the public version, which was filed on March 16, 2005, should be corrected by replacing the originally-submitted pages with the attached corrected pages.

Respectfully submitted,

A handwritten signature in black ink that reads "Sean P. Gates".

Chong S. Park
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Dated: March 18, 2005

CERTIFICATE OF SERVICE

I, Terri Martin, hereby certify that on March 18, 2005, I caused a copy of the public version of Complaint Counsel's Errata Sheet with corrected pages to be served upon the below listed persons:

VIA HAND DELIVERY & ELECTRONIC MAIL TO:

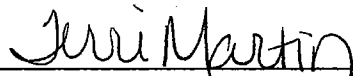
The Honorable D. Michael Chappell
Administrative Law Judge
U.S. Federal Trade Commission
600 Pennsylvania Avenue, NW
Washington, DC 20580
E-Mail c/o Dana Gross (dgross@ftc.gov)

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Terri Martin

**UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION**

DOCKET NO. 9305

PUBLIC VERSION

**IN THE MATTER OF
UNION OIL COMPANY OF CALIFORNIA**

**COMPLAINT COUNSEL'S PROPOSED
FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER**

(VOLUME I)

Susan A. Creighton
Director

Bernard A. Nigro
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Bureau of Competition
Federal Trade Commission
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Dated: March 9, 2005

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percent from motor vehicles” no later than December 31, 2000;

- b. Take actions “to achieve the maximum feasible reduction in particulates, carbon monoxide, and toxic air contaminants from vehicular sources”; and
- c. Adopt standards and regulations that would result in “the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuels” including the “specification of vehicular fuel composition.”

(CCPF ¶¶ 223-245).

- 9. Following the 1988 California Clean Air Act amendments, CARB embarked on two rulemakings relating to low-emissions gasoline. In these proceedings, “Phase 1” and “Phase 2,” CARB prescribed limits on specific gasoline properties. (CCPF ¶¶ 223-450).
- 10. In the Phase 2 reformulated gasoline proceedings, on which this case focuses, CARB developed comprehensive standards for low-emissions gasoline, commonly referred to as “reformulated gasoline” or “RFG.” (CCPF ¶¶ 246-262). Reformulated gasoline is “cleaner burning gasoline that pollutes less” than standard conventional gasoline. (RX 116 at 001). Generally, reformulated gasoline involves limitations on the properties of gasoline intended to be sold in more densely populated areas where ambient conditions don’t disperse pollutants very effectively. (RX 922 at 144-145).
- 11. Beginning in 1990 and continuing throughout the CARB Phase 2 rulemaking second implementation, Unocal provided materially misleading information to CARB for the purpose of obtaining competitive advantage. (CCPF ¶¶ 1030-1435).
- 12. This information was materially misleading in light of Unocal's suppression of facts relating to the Unocal proprietary interests in Unocal’s emissions research results and Unocal's active prosecution and enforcement of patents based on these research results. (CCPF ¶¶ 1030-1435, 3948-4247, 4358-4447).
- 13. Unocal gave CARB this information in private meetings with CARB, through participation in CARB's public workshops and hearings, and through industry groups that also were commenting on the CARB regulations. (CCPF ¶¶ 1030-2038, 2085-2116, 2275-2325).
- 14. On June 11, 1991 CARB held a public workshop regarding the Phase 2 regulations. (CCPF ¶¶ 935-1029).

24. Unocal made numerous subsequent statements and comments to CARB that reinforced the materially false and misleading impression that Unocal had created. (CCPF ¶¶ 1030-1435, 2085-2167).
25. In reasonable reliance on Unocal's representation that the information was no longer proprietary, CARB used Unocal's equations in setting a T50 specification. (CCPF ¶¶ 4063-4247).
26. Subsequently, in October 1991 CARB published Unocal's equations in public documents supporting the proposed Phase 2 regulations. (CX 5).
27. On November 22, 1991, CARB adopted Phase 2 regulations that set standards for the composition of low-emissions Gasoline with specific limits for eight gasoline properties. (CCPF ¶¶ 2117-2167).
28. Unocal's pending patent claims recited limits for five of the eight properties specified in the CARB Phase 2 regulations, including T50. (CX 1709 at 015; RX 1165A at 012).
29. In June 1994, CARB amended the Phase 2 regulations to include, as an alternative method of complying, a predictive model that was intended to provide refiners with additional flexibility. (CCPF ¶¶ 218-221).
30. This "predictive model" permits a refiner to comply with the CARB regulations by producing fuel that – based on the composition and the levels of the eight properties – is predicted to have emissions equivalent to a fuel that meets the strict gasoline property limits set forth in the regulations. (CCPF ¶¶ 218-221).
31. During the development of the predictive model, Unocal submitted comments to CARB touting the predictive model as offering flexibility and furthering CARB's mandate of cost-effective regulations. (CCPF ¶¶ 2275-2325).
32. Unocal's statements were materially false and misleading because Unocal suppressed the material fact that assertion of Unocal's proprietary rights would materially increase the cost and reduce the flexibility of the proposed regulations. (CCPF ¶¶ 3948-4062).
33. Throughout Unocal's communications and interactions with CARB prior to January 31, 1995, Unocal failed to disclose that it had pending patent rights, that Unocal's patent claims overlapped with the proposed regulations, and that Unocal intended to charge royalties. (CCPF ¶¶ 2574-2590).
34. Unocal's misrepresentations and materially false and misleading statements caused CARB to adopt Phase 2 regulations that substantially overlapped with Unocal's concealed patent claims, including CARB's adoption of a specification for T50 in the CARB Phase 2

45. One of the studies submitted by WSPA and used by CARB to determine the cost-effectiveness of the proposed Phase 2 standards, incorporated information relating to royalty rates associated with refiner patents, including Unocal hydrocracking patents, and could have incorporated costs associated with Unocal's pending patents. (CCPF ¶¶ 1934-2038).
46. Unocal's presentation of the 5/14 Project research results to WSPA on September 10, 1991 created the materially false and misleading impression that Unocal's emissions research results, including the data and equations, were nonproprietary and could be used by WSPA or WSPA's individual members without concern for the existence or enforcement of any intellectual property rights. (CCPF ¶¶ 1749-1842).
47. Unocal's interactions with Auto/Oil and WSPA prior to January 31, 1995 failed to disclose Unocal's pending patent rights and Unocal's intention to charge royalties, and included false and misleading statements concerning Unocal's proprietary interests in the results of Unocal's emissions research. (CCPF ¶¶ 1749-1842).
48. None of the participants in the WSPA or Auto/Oil groups knew of the existence of Unocal's proprietary interests and/or pending patent rights at any time prior to the issuance of the patent in February 1994, by which time most, if not all, of the oil company participants to these groups had made substantial progress in their capital investment and refinery modification plans for compliance with the CARB Phase 2 regulations. (CCPF ¶¶ 3803-3948).
49. But-for Unocal's fraud, these participants in the rulemaking process would have taken actions including, but not limited to (a) advocating that CARB adopt regulations that minimized or avoided infringement on Unocal's patent claims; (b) advocating that CARB negotiate, or themselves negotiate, license terms substantially different from those that Unocal was later able to obtain; and/or (c) incorporating knowledge of Unocal's pending patent rights in their capital investment and refinery reconfiguration decisions to avoid and/or minimize potential infringement. (CCPF ¶¶ 4433-4716).
50. The relevant Unocal patent claims all derive from patent application No. 07/628,488, filed on December 13, 1990. (Answer ¶ 15; JX 3A at 003).
51. Following the November 1991 adoption of CARB's Phase 2 specifications, Unocal amended Unocal's patent claims in March 1992 to ensure that the claims more closely matched the CARB Phase 2 regulations. (CCPF ¶¶ 2630-2691).
52. On or about July 1, 1992 Unocal received an office action from the U.S. Patent and Trademark Office ("PTO") indicating that most of Unocal's pending patent claims had been allowed, and in February 1993, after submission of additional amendments, Unocal

CARB-compliant summer-time gasoline in California. (CCPF ¶¶ 2817-2849).

64. The extensive overlap between the CARB reformulated gasoline regulations and the Unocal patent claims makes avoidance of the Unocal patent claims technically and/or economically impossible. (CCPF ¶¶ 3174-3654).
65. Refiners, having invested billions of dollars in sunk capital investments without knowledge of Unocal's patent claims to reconfigure their refineries in order to comply with the CARB Phase 2 regulations cannot produce significant volumes of non-infringing CARB-compliant gasoline without incurring substantial additional costs. (CCPF ¶¶ 3803-3947).
66. CARB cannot now change the CARB reformulated gasoline regulations sufficiently to provide flexibility for refiners and others to avoid Unocal's patent claims. (CCPF ¶¶ 3703-3802).
67. Had Unocal disclosed Unocal's proprietary interests and pending patent rights earlier, CARB would have been able to consider the potential costs imposed by the Unocal patents, and the harm to competition and to consumers would have been avoided. (CCPF ¶¶ 4338-4447).
68. Unocal has exercised, and continues to exercise, market power through business conduct by enforcing the Unocal reformulated gasoline patents through litigation and licensing activities. (CCPF ¶¶ 2692-2757).
69. Unocal's actions have caused harm to competition and substantial consumer injury. (CCPF ¶¶ 4717-4762).

C. Background on Key Players.

1. Union Oil Company of California.

70. Union Oil Company of California is a public corporation organized, existing, and doing business under, and by virtue of, the laws of California. Unocal's office and principal place of business is located at 2141 Rosecrans Avenue, Suite 4000, El Segundo, California 90245. (Answer ¶ 11; JX 3A at 002).
71. Since 1985, Union Oil Company of California has done business under the name "Unocal." (Answer ¶ 11; JX 3A at 002).
72. Unocal is, and at all relevant times has been, a corporation as "corporation" is defined by Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44; and at all times relevant herein, Unocal has been, and is now, engaged in commerce as "commerce" is defined in

the same provision. (Answer ¶ 12; JX 3A at 001).

73. Prior to 1997, Unocal owned and operated refineries in California as a vertically integrated producer, refiner, and marketer of petroleum products. (Answer ¶ 13; JX 3A at 002).
74. In March 1997, Unocal completed the sale of the Unocal west coast refining, marketing, and transportation assets to Tosco Corporation, but continued to engage in oil and gas exploration and production. (Answer ¶ 13).
75. Unocal is the owner, by assignment, of the following patents relating to low emissions, reformulated gasoline: United States Patent No. 5,288,393 (issued February 22, 1994); United States Patent No. 5,593,567 (issued January 14, 1997); United States Patent No. 5,653,866 (issued August 5, 1997); United States Patent No. 5,837,126 (issued November 17, 1998); United States Patent No. 6,030,521 (issued February 29, 2000). (Answer ¶ 15; JX 3A at 003; Croudace, Tr. 339; Wirzbicki, Tr. 880; CX 617; CX 618; CX 619; CX 620; CX 621).
76. These five patents all share the identical specification. (Answer ¶ 15; JX 3A at 003).
77. These five patents all arise from the same scientific discovery and are related in that they all claim priority based on application number 07/628,488, filed December 13, 1990. (Answer ¶ 15; JX 3A at 003).

Roger Beach

78. Roger Beach became President of Unocal's 76 Division in April 1986. (CX 1578 at 002; Beach, Tr. 1650-1651).
79. Within Unocal, the 76 Division was also referred to as Refining and Marketing. (Beach, Tr. 1676).
80. In 1992, Mr. Beach was appointed COO and President of Unocal Corporation. (Beach, Tr. 1651; CX 593 at 001).
81. In 1994, Mr. Beach was promoted to Chief Executive Officer of Unocal. (Beach, Tr. 1651; CX 1005 at 001; CX 374 at 001).
82. In 1995, one year after being appointed CEO, Mr. Beach became the Chairman of the Board for Unocal. (Beach, Tr. 1651; CX 905 at 001; CX 714 at 001).
83. Mr. Beach served as a member of California's A.B. 234 study panel (the "Leonard Commission") on alternative fuels. (Beach, Tr. 1744; Boyd, Tr. 6693).

189. Gasoline is produced from crude oil. Crude oil is a mixture of many different chemical compounds and is described in terms of the particular crude's gross physical properties. (Eskew, Tr. 2824).
190. Petroleum refining is a complex industrial process. The primary activity is that crude oil is converted and processed into a variety of petroleum products that are used in many different markets. (Eskew, Tr. 2821).
191. Crude oil does not have a distinct boiling point, rather it boils over a wide range of temperatures. The portions of the crude oil that boil at specified temperature ranges are called fractions. Crude oil is described in terms of these fractions. (Eskew, Tr. 2824-2825).
192. To make gasoline, crude oil is brought into the refinery, and then split into different streams depending on the molecular weight of the streams. This is called "fractionation." (Jessup, Tr. 1469-1470). These streams are either blended directly into gasoline, or modified so that the streams are suitable for gasoline blending. Blending is the final process by which these streams are combined to create gasoline. (Jessup, Tr. 1470).

1. **Reformulated Gasoline.**

- a. **What Is Reformulated Gasoline?**

193. Reformulated gasoline is "cleaner burning gasoline that pollutes less." (RX 116 at 001; RX 922 at 144-145). Motor vehicle fuel emissions are a significant source of carbon monoxide ("CO"), volatile organic compounds ("VOC"), and oxides of nitrogen ("NOx"). The latter two pollutants are precursors to ozone formation. (CX 5 at 007).
194. Members of the petroleum industry were among the leaders in developing reformulated gasoline, at least in part because these petroleum industry participants did not want alternative products, such as methanol, mandated for use in automobiles. (Venturini, Tr. 128; CX 1021 at 019).

- b. **How Can Reformulated Gasoline Reduce Pollution?**

195. By the late 1980s and early 1990s regulators, oil industry members and scientists realized that, by regulating the various properties of the gasoline, one could limit the amount of harmful emissions that were produced. (RX 922 at 144-145).
196. One property that is regulated for pollution control purposes is the volatility of the gasoline, or how easily it burns. (CX 5 at 019-021). Volatility is measured by Reid Vapor Pressure ("RVP") and expressed in pounds per square inch (or "psi"). (CX 2149). Generally, a lower RVP indicates better emissions. (CX 5 at 019-021).

as to what properties of gasoline to vary and what compositions to make that to have a fuel with lower emissions. (Jessup, Tr. 1155).

497. In the fall of 1989, Dr. Jessup and Dr. Croudace proposed to their management, including Dr. Alley and Dr. Miller, a research program to measure the effects of gasoline compositions and properties on automotive engine emissions. (CX 142 at 001-002, 007).
498. Drs. Jessup and Croudace in late 1989 sought to figure out how to change gasoline properties to minimize three major categories of automotive engine emissions: carbon monoxide (CO), nitrogen oxide (NOx) and unburned hydrocarbons (HC). (CX 142 at 003, 009). They knew that this research, if successful, could be used to make reduced-emissions reformulated gasoline. (CX 142 at 003-004).
499. Dr. Jessup and Dr. Croudace designed a study to independently isolate the effects of ten gasoline properties and components on these three categories of emissions (CO, NOx, and HC). (CX 142 at 004; CX 186 at 002-005).
500. The ten properties that Unocal's scientists chose to study were the T10 distillation point, T50 distillation point, T90 distillation point, Reid Vapor Pressure, paraffin content, olefin content, aromatics content, MTBE (oxygen) content, Research Octane Number, and Motor Octane Number. (CX 142 at 004; CX 186 at 002-005).
501. The distillation points of gasoline (T10, T50, T90) are the temperatures at which a specified volume of gasoline evaporates. T10 is the temperature at which ten percent of the gasoline will evaporate, T50 the temperature at which 50% will evaporate, and T90 the temperature at which 90% will evaporate. (CX 1709 at 013; CX 617 at 021, col. 18, ll. 29-35 ('393 patent); CX 186 at 009).
502. Reid Vapor Pressure (RVP) refers to the volatility of gasoline (the partial pressure of gasoline when heated to 100° F in a sealed container). (CX 617 at 021, col. 18, ll. 43-54 ('393 patent)).
503. Olefins, paraffins and aromatics are the three hydrocarbon components of gasoline, and are typically measured by their percentage volume. (CX 1709 at 003-004; Wirzbicki, Tr. 964, 1085-1086).
504. Octane is a traditional engine performance specification that measures gasoline's ability to resist auto-ignition or "engine knock" in use. (CX 1709 at 012).
505. Research Octane Number (RON) and Motor Octane Number (MON) are two different components of octane measurements. (CX 1709 at 012-013).
506. MTBE is a component that adds oxygen content to gasolines. (CX 142 at 005; CX 1709

at 015).

507. Although other industry members had studied the impact of varying some of these gasoline properties or components on vehicle emissions, they had not isolated the effect of each individual property or component or studied such a large number of them. (CX 186 at 005-006).

2. Unocal Scientists Performed Experiments to Determine the Effects of Gasoline Properties on Automobile Exhaust Emissions.

508. Unocal pursued a proprietary emissions research project. Beginning in January 1990, Unocal scientists from the company's Science and Technology Division – Peter Jessup and Michael Croudace – conducted the first of three separate test programs to determine the effects of certain gasoline properties on emissions. (CX 585; CX 107; Jessup, Tr. 1154-1155; 1158).

509. The emissions research conducted by Drs. Jessup and Croudace consisted of a one-car test followed by a ten-car test, with additional tests done thereafter. (Jessup, Tr. 1154-1155). This research later became known by the name "5/14 Project," which was shorthand for all of Unocal's emissions research relating to reformulated gasoline. (Croudace, Tr. 526-527).

510. Drs. Jessup and Croudace sought to design their study to independently isolate the effects of ten gasoline properties and components on these three categories of emissions (CO, NOx, and HC). (CX 142 at 004; CX 186 at 002-005).

511. Drs. Jessup and Croudace began conducting the one-car test in January 1990. They substantially completed the one-car study by the end of March 1990, and expected to complete the testing and data analysis by June 1990. (Jessup, Tr. 1154-1155, 1158; CX 163 at 001).

512. This first one-car study tested fifteen test fuels with a wide range of ten fuel properties by combusting them in a 1988 Oldsmobile Regency automobile to determine their emissions outputs. A "check" fuel was used as a control in every fifth run. (CX 186 at 006-007; CX 617 at 016, col. 7, 1.60 - col. 8, 1.68; Jessup, Tr. 1154-1155).

513. Drs. Jessup and Croudace then regressed the emissions outputs for the test fuels against ten gasoline property variables using a commercially-available computer program. (CX 617 at 016, col. 8, ll. 46-57; CX 186 at 009). The computer program produced a set of simple linear equations that show the correlations between the emissions outputs and the property variables. (CX 186 at 002,009; CX 617 at 015, col. 5, ll. 36-37; 016, col. 8, ll. 57-61).

Unocal's Chairman and Chief Executive Officer, Chief Financial Officer, Chief Legal Officer, and four Senior Vice Presidents with responsibilities for the Chemicals, Exploration and Production, Refining and Marketing, and Corporate Development Divisions. (CX 7065 (Stegemeier, Dep. at 025-028, 031-032, 084); CX 179 at 001; CX 614 at 034).

571. Participants to the May 14, 1990 Unocal Executive Committee meeting included, but were not limited to, Richard Stegemeier, Roger Beach, Neil Schmale, Denny Lamb, Wayne Miller, Michael Croudace, Peter Jessup. (CX 175; Lamb, Tr. 1827; CX 7065 (Stegemeier, Dep. at 75); Beach, Tr. 1668; Croudace, Tr. 458-459).
572. The May 14, 1990 meeting was a big event for Dr. Croudace and Dr. Jessup. (Croudace, Tr. 460). In his entire career at Unocal, Dr. Jessup has only made two or three presentations to such a committee. (Jessup, Tr. 1163).
573. In the May 14, 1990 presentation to the management committee, Dr. Jessup explained the inventions that he and Dr. Croudace had discovered from the one-car test data. (CX 171 at 001). Based on that data, Dr. Jessup explained that T50 was the most important variable for HC emissions. (Jessup, Tr. 1164-1165; CX 171 at 042). He also listed T50 first among the most important gasoline factors. (Jessup, Tr. 1165; CX 171 at 043). Further, based on the data from the one-car test, Dr. Jessup told the Unocal management committee that one can "predict emissions through a mathematical equation", i.e., through a predictive model. (Jessup, Tr. 1165-1166).
574. As Dr. Jessup admits, the charts of the one-car data that he showed to the Executive Committee "show what the invention is" and "where the new compositions of gasoline are." (Jessup, Tr. 1170-1172).
575. Drs. Jessup and Croudace recommended the Unocal Executive Committee to "[t]ake the results of this current study" to CARB. (CX 171 at 007; Jessup, Tr. 1162-1164).
576. Mr. Stegemeier, the then Chairman and CEO of Unocal, had a positive reaction to the presentation made by the Science and Technology Division to the Executive Committee regarding the company's emissions research. (CX 7065 (Stegemeier, Dep. at 32, 86)).
577. The 5/14 project generated considerable excitement at Unocal. (Beach, Tr. 1668). 76 Products Company President Beach was "bowled over" and "very excited" by Drs. Jessup and Croudace's presentation. (Beach, Tr. 1668). Denny Lamb thought the May 14, 1990 presentation was "exciting," and believed that Unocal should do more research. (Lamb, Tr. 2179).
578. One of the recommendations presented at the May 14, 1990 Executive Committee meeting was to "[t]ake the results of this current study to the EPA and CARB." (Lamb,

587. Mr. Schmale has experience working for Unocal as both an attorney and as a petroleum engineer. The Research Department of Unocal reported to Mr. Schmale from 1988 to 1991. (CX 7062 (Schmale, Dep. at 6, 8-9)).

4. Unocal's Executive Committee Approved Funding for Further Research in Late May 1990 and Monitored the Progress of the 5/14 Project.

588. The May 14, 1990 presentation to the Executive Committee led to several significant follow-up decisions. First, a patent application would be filed for the results of the 5/14 project. (Beach, Tr. 1753-1754). Second, Unocal authorized Drs. Jessup and Croudace to continue their emissions research, and provided them with an additional \$765,000.00. (CX 176). Third, Unocal decided that the results of the emission research should be kept secret. (Lamb, Tr. 2044).

589. Unocal's Refining and Marketing Division, of which Roger Beach was President, became the corporate sponsor of the 5/14 Project. (Beach, Tr. 1669).

590. At the May 14, 1990 presentation to Mr. Stegemeier, Unocal's then CEO and Chairman of the Board, Mr. Lamb made handwritten notes on an internal Unocal document. (CX 172; Lamb, Tr. 2042-2044). Mr. Lamb's handwritten notes reflect that there was a "presentation to R. Stegemeier 5-14," and that one of the outcomes of this presentation was a decision to "proceed with research, more cars, 750M." (CX 172; Lamb, Tr. 2043). Mr. Lamb understood that "\$750,000" had been approved, as reflected by the handwritten notes he made at the meeting on May 14, 1990. (Lamb, Tr. 2043-2044).

591. Dr. Alley had the role of getting money for the 5/14 Project. He also followed the project "fairly carefully" to see that the researchers kept the goal in mind. (CX 7041 (Alley, Dep. at 19)).

592. Dr. Alley prepared an Authority for Expenditure for the 5/14 Project. A memo dated May 21, 1990, from Dr. Alley to Mr. Lipman states that the "money will be used for an extended reformulated gasoline program" to measure FTP emissions in ten cars using 15 test gasolines. (CX 176 at 001, 002; CX 7041 (Alley, Dep. at 133); CX 7053 (Lipman, Dep. at 19)).

593. Mr. Beach had discretion to authorize a \$765,000 expenditure. Even given Mr. Beach's authority, the Executive Committee of the Board of Directors reviewed all expenditures and as Chief Executive Officer, Mr. Stegemeier had an interest in how the money was being spent. (CX 7065 (Stegemeier, Dep. at 26, 71-72)).

594. Unocal's Chief Executive Officer, Mr. Stegemeier, personally approved additional funding for the 5/14 project: "Mr. Stegemeier approved an expanded test program after a

royalty stream from licensing the patents from the 5/14 Project. (Jessup, Tr. 1242; CX 2). As Dr. Jessup admitted, the \$1 billion number was put on the poster for management to see. (Jessup, Tr. 1242).

648. The “pot of gold” poster recounts the history of the 5/14 Project. (Jessup, Tr. 1237). It includes graphs from the SwRI emissions test data (the ten-car study). (Jessup, Tr. 1237-1238). It includes frequency charts from the one-car tests. (Jessup, Tr. 1238-1239). It also refers to the results of the Unocal program, which were that it defined key fuel properties that reduce regulated tailpipe emissions, developed a series of equations that predict emissions from key fuel physical properties (one the aspects of the invention), and patent pending formulations (referring to the patent-application). (Jessup, Tr. 1240; CX 2).
649. Jessup created the “pot of gold” poster in or about May 1991, prior to the presentation to CARB of the 5/14 Project. Jessup’s notes relating to a draft outline of the presentation to CARB indicates that the proposed presentation to CARB would include some of the same information detailed on the poster. (CX 245).
650. As Dr. Jessup admitted, the “pot of gold” poster board contains bar charts that he later showed to CARB. (Jessup, Tr. 1239, 1285 (stating that CX 24 at 044-046 “are the same frequency charts that we looked at yesterday at CX 2”)). He also admitted that the poster refers to the possibility of Unocal introducing an interim RFG, which was abandoned prior to June 1991. (Jessup, Tr. 1240-1241). Further, a layout of slides that Dr. Jessup created during preparations for the meeting with CARB, states that the CARB presentation should include “results ala poster,” by which Dr. Jessup was referring to the bar charts on the “pot of gold” poster. (CX 245; Jessup, Tr. 1248-1249).
651. Dr. Jessup put the “pot of gold” image on the poster; he “thought it was a nice touch.” (Jessup, Tr. 1242).
652. Dr. Jessup ensured that his manager, Dr. Miller, reviewed the “pot of gold” poster before it was used. (Jessup, Tr. 1243).
653. Dr. Miller participated in the creation of the “pot of gold” poster board. (Miller, Tr. 1425; CX 2). He was involved in setting the \$1 billion figure on that board, which is based on a 1 cent/gallon royalty. (Miller, Tr. 1427; CX 2). Originally, the figure was higher because of a higher cent/gallon royalty. (Miller, Tr. 1428). Working with the inventors, Dr. Miller (their supervisor at the time) reduce the number to make it “more credible.” (Miller, Tr. 1428).
654. The \$1 billion revenue stream depicted on the “pot of gold” poster board was more than 10% of Unocal’s overall revenues in 1990. (Miller, Tr. 1429).

836. Dr. Croudace sent the November 1990 memorandum advising that "Unocal's Advantage from the 5/14 Project will Be Gone in Six Months," to Mr. Wirzbicki, Unocal's Chief Patent Counsel, Mr. Lamb, and Dr. Alley. (CX 207).
837. In January 1991, Unocal management believed that one way to use 5/14 for competitive advantage was to "influence CARB rules," as this alternative was presented [or was considered as an option to present] to Richard Stegemeier, Unocal's CEO and Chairman of the Board. (CX 219 at 012).

3. Unocal Management Knew That Unocal Could Obtain a "Pot of Gold" From Licensing its Reformulated Gasoline Technology.

838. Dr. Jessup created a 4 foot by 8 foot "pot of gold" poster board (CX 2) for an "in-house poster session." (Jessup, Tr. 1235). The poster was used to show Unocal management the work that Dr. Jessup was doing in the Science and Technology Division. (Jessup, Tr. 1236). Dr. Jessup stood in front of the poster and used it to explain the 5/14 Project. (Jessup, Tr. 1236). At the time, Dr. Jessup expected that the patent from the 5/14 Project would be of some commercial value. (Jessup, Tr. 1236). The board placed that value at \$.01 per gallon or \$1,000,000,000 per year. (CX 2).
839. On the "pot of gold" poster, Dr. Jessup estimated that Unocal could achieve \$100 million a year from introducing reformulated gasoline in the market and cost saving at its Los Angeles refinery. (Jessup, Tr. 1241-1242; CX 2). But he estimated a \$1 billion per year royalty stream from licensing the patents from the 5/14 Project. (Jessup, Tr. 1242; CX 2). As Dr. Jessup admitted, the \$1 billion number was put on the poster for management to see. (Jessup, Tr. 1242).
840. The "pot of gold" poster recounts the history of the 5/14 Project. (Jessup, Tr. 1237). It includes graphs from the SwRI emissions test data (the ten-car study). (Jessup, Tr. 1237-1238). It includes frequency charts from the one-car tests. (Jessup, Tr. 1238-1239). It also refers to the results of the Unocal program, which were that it defined key fuel properties that reduce regulated tailpipe emissions, developed a series of equations that predict emissions from key fuel physical properties (one the aspects of the invention), and patent pending formulations (referring to the patent-application). (Jessup, Tr. 1240; CX 2).
841. Jessup created the "pot of gold" poster in or about May 1991, prior to the presentation to CARB of the 5/14 Project. Jessup's notes relating to a draft outline of the presentation to CARB indicates that the proposed presentation to CARB would include some of the same information detailed on the poster. (CX 245).
842. As Dr. Jessup admitted, the "pot of gold" poster board contains bar charts that he later showed to CARB. (Jessup, Tr. 1239, 1285 (stating that CX24 at 44-46 "are the same

**UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION**

DOCKET NO. 9305

PUBLIC VERSION

**IN THE MATTER OF
UNION OIL COMPANY OF CALIFORNIA**

**COMPLAINT COUNSEL'S PROPOSED
FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER**

(VOLUME II)

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acetaldehyde from gasoline vehicles (CX 5 at 092); determining the proper emissions inventory to gauge the size of potential benefits (CX 5 at 007); determining how use of Phase 2 would affect emissions in mobile sources other than cars. (CX 5 at 068).

951. Between 1991 and 1993, Michael Kulakowski of Unocal met with CARB staff dozens of times. (Kulakowski, Tr. 4398).
952. Unocal itself had numerous written and oral communications with CARB staff regarding Phase 2, both written and oral, including but not limited to those on the following dates – June 20, 1991, October 29, 1991, November 21, 1991, November 22, 1991, June 19, 1992, August 14, 1992, September 4, 1992, June 3, 1994, and June 9, 1994. (CX 24; CX 33; CX 774; CX 39; CX 40; CX 575; CX 42; CX 43; CX 44). Unocal provided specific, detailed and technical comments to CARB relating to the proposed specifications. (Lamb, Tr. 2078, 2292; CX 33 at 003-020).
953. CARB invited the public to participate in workshops during the regulatory process. For the workshops CARB staff provided information to stakeholders and asked the stakeholders to provide feedback. CARB used the workshops as a forum to “openly” discuss the direction staff considered going with the regulations and asked the public to provide comments and suggestions. (Courtis, Tr. 5733).
954. Prior to the August 14, 1991 workshop, CARB provided information to enable the public and stakeholders to participate in the workshop discussion by providing comments, feedback, and recommendations. (RX 184; Courtis, Tr. 5773)
955. CARB's preliminary draft proposal for the August workshop gave industry participants insight into what parameters CARB staff was beginning to believe were significant to control. The preliminary draft proposal told participants "what they're thinking." (Clossey, Tr. 5374; RX 184).
956. After the initial Board approval in November 1991, CARB continued its dialogue with interested parties to determine the workability and details of an innovative “predictive model” method to be used as an alternative means of demonstrating compliance with the rule (CX 53 at 006); and determining how to assure a level playing field among large and small refiners (CX 10 at 015).
957. CARB staff viewed its informational exchange with regulated parties as a very important element in devising sound Phase 2 RFG regulations. The process was an open and dynamic process built on open professional communication of a scientific and technical nature. (Venturini, Tr.123-124).
958. CARB staff made available to WSPA members preliminary rule proposals in an “effort to solicit data and response from industry to better assist CARB in evaluation” of proposed

necessarily have to include parameters. (Lamb, Tr. 2388).

1060. Roger Beach wanted to disclose to CARB whatever it took to get CARB to adopt a predictive model. (Beach, Tr. 1659). He was "hellbent" to do whatever it took to move CARB toward a predictive model. (Beach, Tr. 1659).
1061. Roger Beach did not have any problem with his team showing Unocal's predictive model to CARB. (Beach, Tr. 1786-1787).
1062. Roger Beach testified that he wanted Denny Lamb to tell CARB that if CARB adopted a predictive model, Unocal would provide to CARB both Unocal's data and its equations. (Beach, Tr. 1659).
1063. Denny Lamb kept Roger Beach updated with respect what was going on with CARB. (Beach, Tr. 1659-1660).
1064. In 1991, Unocal was still a refiner operating in California. (Beach, Tr. 1742).
1065. Unocal believed that a predictive model could save the company millions in capital expenses at its California refineries. (CX 39 at 004; Lamb, Tr. 1961-1962).
1066. When he sent Mr. Lamb to meet with CARB, Mr. Beach instructed him that Unocal would provide to CARB Unocal's data and equations if CARB would move toward a predictive model. (Beach, Tr. 1678). This was Mr. Beach's decision. (Beach, Tr. 1678-1679).
1067. Roger Beach understood that T50 was one of the important components of the predictive model that Unocal shared with CARB. (Beach, Tr. 1785-1786).
1068. Dr. Croudace and Dr. Jessup would have "loved" to have the predictive models that they had developed from the 5/14 Project incorporated as CARB's predictive model. (Croudace, Tr. 505-508).

B. Prior to the June 20, 1991 Meeting With Unocal, CARB Had Not Proposed A T50 Specification.

1069. In May 1991, CARB invited industry members to discuss its developing Phase 2 RFG specifications at a June 1991 workshop. CARB stated that distillation properties, including T90, were among the specifications that it was considering. CARB also indicated that it would consider the use of predictive models as an alternative to the fuel parameter specifications. (CX 492 at 003-004; Lamb, Tr. 1965-1966).
1070. On June 11, 1991, Unocal participated in a CARB workshop concerning the proposed

